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NEOPLASTIC DISEASE OF THE RETICULO-ENDOTHELIAL SYSTEM

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In this paper we propose to present a case, with necropsy observations, of reticulo-endothelial disease showing features of mycosis fungoides, Hodgkin's disease and reticular cell lymphosarcoma, the first signs being lesions of the skin with rapid coalescence and extension and involvement of the entire lymphatic system.

REPORT OF A CASE

History.—S. O., a 36 year old woman, was admitted to the New York Hospital on Dec. 24, 1932, because of a distressing indurated erythematous cutaneous lesion extending over the lower part of the abdomen and in the axillae. Until the onset of this condition early in October 1932, the patient had always enjoyed good health. The first cutaneous lesion appeared as a streaky or linear swelling of the skin in the left groin. This was accompanied by some pain and followed in about two weeks by redness over the same area. Three or four weeks later the right groin became similarly affected. About this time the patient noticed a painful swelling of the left axillary glands, and shortly after this both axillae showed glandular enlargements and cutaneous lesions similar to those in the groins. Other lymph nodes, notably the cervical and submaxillary, became intermittently enlarged and painful throughout the course of the disease. About December 5, the patient contracted a severe cold in the head. At this time the erythema and induration in the groins became more pronounced and rapidly extended over the vulva and lower part of the abdomen (fig. 1).

Examination.—The patient appeared to be undernourished and chronically ill. There were pallor and slight dyspnea and a tendency to cough when in the supine position. The tonsils were enlarged and reddened. There were numerous firm shotty lymph glands in the anterior, posterior and lateral cervical areas and in both axillary and inguinal regions. The glands were freely movable and not matted together. The heart was normal as to size, rhythm and sounds. The bases of both lungs were unusually high but descended on inspiration.

Abdomen: The abdomen was somewhat distended in appearance and tense to palpation. There was no tenderness and no fluid wave. The percussion note varied from dull to flat over the entire area. The liver was 1 cc. below the costal margin. The spleen was not palpable. There was a sensation of a round

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mass in the epigastrium which did not appear to descend on respiration. External hemorrhoids and nodules were seen in the sigmoid colon on proctoscopy.

Skin: On the right cheek there was a black rounded and slightly raised mole about 0.4 cc. in diameter, which had remained the same size since childhood. In both axillary folds and extending over the lateral aspects of the breasts, there was an erythematous hyperkeratotic area of skin which appeared dry and scaly and in places violaceous. Both inguinal regions exhibited a similar process in an apparently more advanced stage, there being elevated, hard, oval, nodular lesions in the folds of skin. The integument on the lower part of the abdomen,

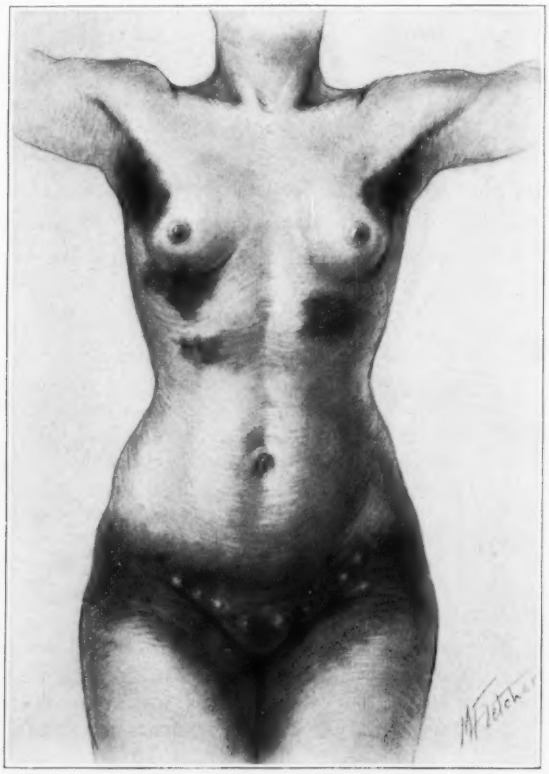

Fig. 1.—Drawing to show the distribution of cutaneous lesions and pea-sized nodules in the lower abdominal and inguinal folds of skin.

the upper portion of the thighs and the vulva was the seat of a brawny, diffuse erythematous lesion which was sharply demarcated but not elevated at the margins and presented an indurated or boardlike hardness to palpation.

Laboratory Findings: The urine was light yellow, with a specific gravity of 1.018, an acid reaction, albumin (1 plus), no sugar, a few white blood cells and occasional red blood cells. A blood count revealed: white cells, 1,300; red cells, 4,000,000; hemoglobin, 75 per cent. The differential count showed: adult polymorphonuclears, 59 per cent; early polymorphonuclears, 30 per cent, and mononuclears, 5 per cent. The sputum contained no specific organisms. Examination of fluid from the pleural cavity showed: specific gravity, 1.013; cells, 7,000. A culture was negative. The Wassermann and Kline tests gave negative results.

Course.—The patient was put on a diet high in calories and vitamins, and zinc stearate was applied to the cutaneous lesions. The temperature showed low spiking for the first few days; the pulse rate became gradually elevated and the respiratory rate increased. A series of roentgenograms of the gastro-intestinal tract on Dec. 27, 1932, showed a mass at the rectosigmoid junction. On December 30 100 cc. of fluid was removed from the left lung. The patient went rapidly downhill, with rising temperature and pulse rate and progressive dyspnea. Signs of pleural effusion developed, and on January 1 700 cc. of fluid was removed from the left lung, with little improvement in the patient's breathing. The cutaneous lesions became dry and itchy, with increasing induration. The patient died on January 9.

Necropsy.—The chief findings at necropsy were reticulo-endothelial lymphosarcoma with (*a*) involvement of the skin of the groins, lower part of the abdomen, vulva, inner aspects of the thighs, axillae, breasts and left side of the neck; (*b*) involvement of the lymph nodes and mesenteric, omental and retroperitoneal tissues, and (*c*) metastatic lesions of the pleura, trachea, bronchi, spleen, colon, sigmoid flexure, stomach, rectum and kidneys.

Skin: There was a small ulcerative decubitus just to the right of the midline over the sacral region. Slightly roughened areas extended down over the lateral and inferior surface of the breasts and to a limited extent in a downward direction over the wall of the chest.

Lymph Nodes: All the peripheral lymph nodes were palpable as small, hard, pea-sized nodules except in the inguinal region, where they could not be felt because of the brawny induration of the skin.

Peritoneal Cavity: There was about 100 cc. of clear straw-colored fluid, with numerous adhesions in relation to the lower portion of the sigmoid flexure and in the hepatic flexure of the colon. The entire mesentery was a diffuse indurated and thickened membrane in which could be felt numerous small scirrhous lymph nodes, which on section appeared as dense grayish-yellow nodules, from 3 to 4 mm. in diameter.

Pleural Cavities: The pleural cavities contained from 400 to 500 cc. of cloudy yellowish fluid with considerable fibrin. The lower lobes of the lungs showed chronic pneumonia. The pleural surfaces, particularly over the pneumonic areas, were mottled with grayish-yellow, elevated plaques from 2 to 3 mm. in diameter. The mucosa was intensely congested, and the lumens of the bronchi were filled with a brownish mucoid detritus. The surface of the mucosa of the trachea and bronchi showed nodules and plaques similar to those noted in the pleura.

Gastro-Intestinal Tract: Scattered throughout the entire length of the stomach were numerous small, grayish, submucous nodules, some of which showed an umbilicated eroded surface. No lesions were found in the duodenum, jejunum or ileum, but the entire colon presented the appearance noted in the stomach.

Spleen: There was a small accessory spleen about 1 cm. in diameter. The capsule was tense and somewhat thickened. The consistency of the organ was rather elastic. On section it showed numerous grayish-white nodules distributed throughout the entire organ.

Ureters: The ureters were markedly dilated as a result of partial obstruction due to the extension of the process noted in the mesentery and retroperitoneal tissues.

Bone Marrow: The bone marrow macroscopically showed nothing worthy of note, but sections were taken for histologic examination.

Other Organs: Secondary and terminal changes in other organs not especially related to this disease have been omitted in this report.

Histologic Examination.—The character of the tumor cells was much the same in all the involved organs. The greater number of them were of moderate differentiation, corresponding to the large lymphoblast, with a small to medium amount of pinkish cytoplasm and a varying degree of anaplasia of the nuclei, which were large, with frequent indentation, densely chromatic and not infrequently multiplied by amitosis into two or more lobes. There were also numerous mitoses giving rise to separate cells. Mixed with these in places, in much less number, were cells of less differentiation with a large amount of cytoplasm of an epithelioid type, together with a varying number of more fully differentiated

Fig. 2.—Metastatic nodules on the epiglottis and the larynx.

cells resembling small lymphocytes. In the numerous mesenteric lymph nodes there was evidence of advanced healing, indicated by fibrous replacement of the tumor cells. Where this change was going on the tumor cells showed greater variation in size and staining qualities, together with the formation of giant cells, giving a picture resembling that of atypical Hodgkin's disease (fig. 5). Another striking feature of these nodes not present elsewhere was the marked proliferation of the primitive reticular cells just external to the endothelium of the terminal blood vessels of the lymph sinuses. In figure 4 is shown a vessel invaginating a lymph sinus, pushing the endothelium of the sinus before it so that it is covered externally by endothelium. Between it and the vessel endothelium is seen a band of proliferated reticular cells which in places have ruptured through the endothelium into the sinus. Here these cells appear as undifferentiated tumor cells at the

very site of their origin. In all other involved tissues the relation of the tumor cells to the vessels was that of cellular emboli appearing as dense cell nests, indicating metastasis rather than primary growth.

COMMENT

The lesions in this case showed a variety of neoplastic differentiation and transitional forms of the primitive mesenchymal syncytial reticular cell which is found as a resting wandering cell in the adventitial tissue of the terminal vessels throughout the body. These transitional forms passed all the way from the most immature stages of the

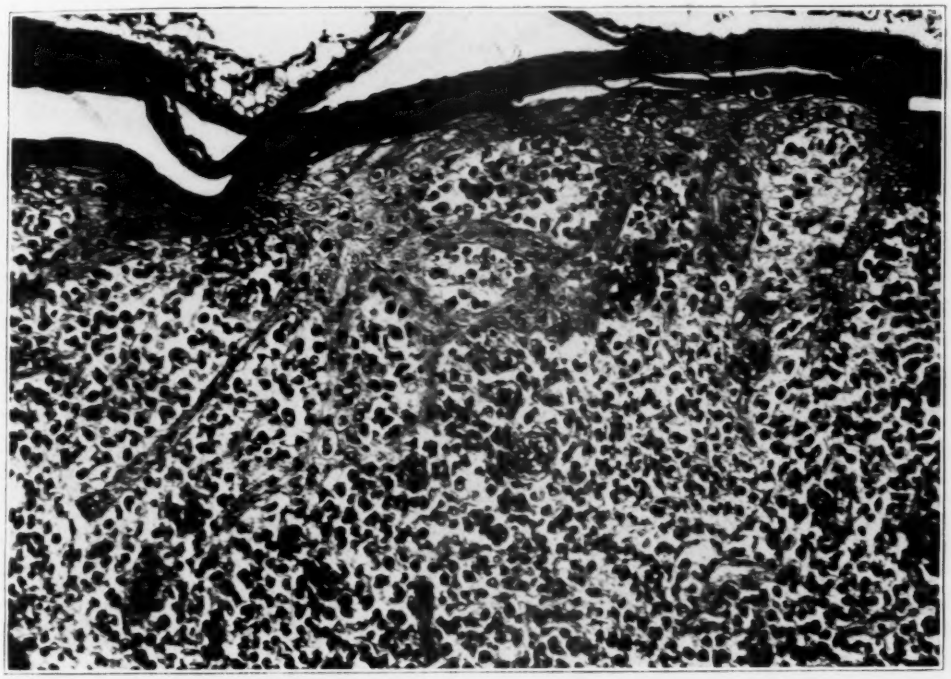

Fig. 3.—Section of skin, showing infiltration of corium and cell nests in the epidermis.

epithelial-like reticular cell through the large lymphoblastic type into the most differentiated form of the adult lymphocyte. In the healing stage in nodes the differentiation showed a trend in places toward the form of the Sternberg or Dorothy Reed cell noted in Hodgkin's disease. In the skin it showed features of differentiation and arrangement characteristic of mycosis fungoides. In this case, too, there was definite and convincing evidence that the neoplasm developed from the adventitial reticular cell of the terminal blood vessels of the sinuses of the mesenteric lymph nodes, a finding further supported by the extensive

fibrous replacement of tumor cells in these nodes, which proves that they represented the oldest site of the lesion. As all the nodes of the mesentery showed the same advanced stage of healing and in view of the gross appearance of the whole mesentery as a dense, thick, nodular fibrous membrane, it would be reasonable to assume that the condition was a multiple primary process of a "regional" group of nodes, a phenomenon characteristic of lymphoblastoma.

As the most apparent and constant anatomic function of the primitive reticular cell in the normal economy of the organism is the produc-

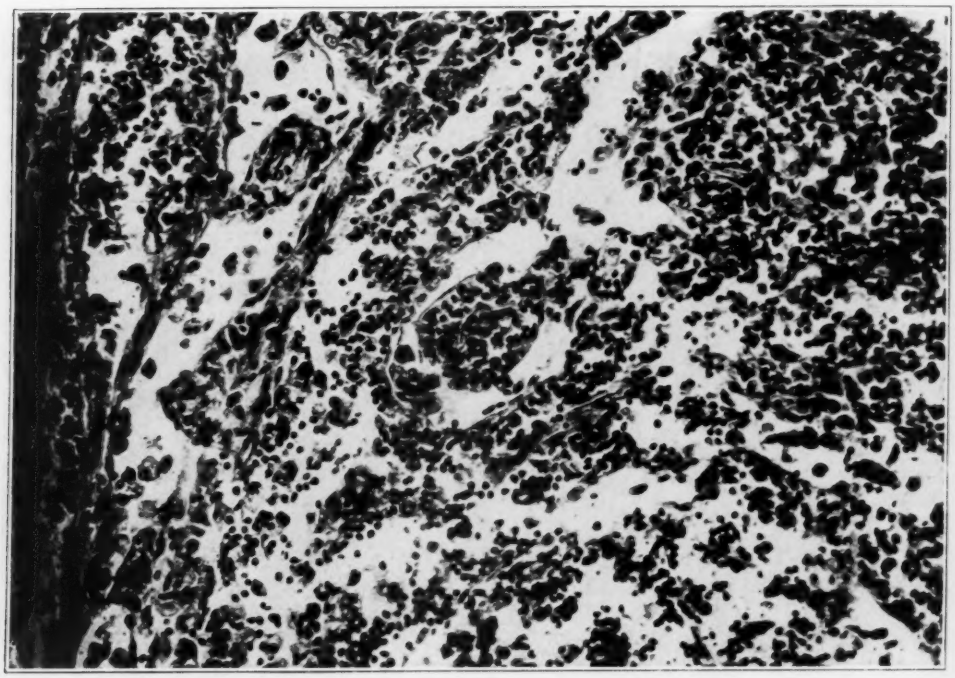

Fig. 4.—Section of a mesenteric lymph node, showing a small blood vessel projecting into a lymph sinus with a proliferation of cells between the endothelium of the blood vessel and that of the lymph sinus. In two areas a few cells have broken through the endothelium of the sinus into the cavity of the sinus.

tion of the lymphatic series of cells, it would appear that, from the morphologic standpoint at least, the most satisfactory title for a neoplasm arising from it would be "lymphoblastoma." This of course can serve only as the most general or fundamental histologic classification, and though it fits the growth in the present case as well as those in many other reported cases quite satisfactorily, there are many tumors in which the degree of cell differentiation may be different and perhaps fixed throughout the whole course of the disease so that some specific

subclassification would be required. Evidence is accumulating rapidly that mycosis fungoides, lymphosarcoma, lymphatic leukemia and Hodgkin's disease should be placed in this subclassification. In 1924 Keim [1] referred to three cases of clinical mycosis fungoides from the department of dermatology at the University of Michigan in which at postmortem examination all of the pathologic changes were found to consist essentially of a malignant hyperplasia of the lymphoid tissues. In one of these the "neoplastic growth of mycosis fungoides had invaded the kidneys, pancreas, testes, and gastro-intestinal tract." Keim, whose

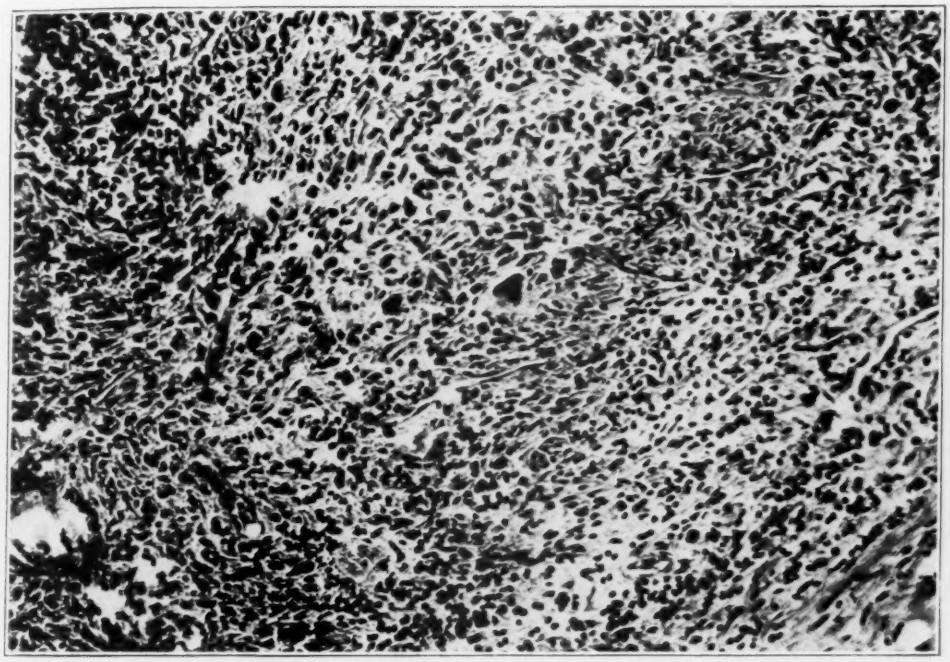

Fig. 5.—Photomicrograph of a healing area in a mesenteric lymph node, showing several features of Hodgkin's disease.

work included a study of Hodgkin's disease and lymphosarcoma, concluded that mycosis fungoides, lymphatic leukemia, lymphosarcoma and Hodgkin's disease are genetically related and that the cutaneous picture associated with these diseases must be regarded as cutaneous expressions of lymphoblastoma. In April 1925, one of us (J. F. F.[2]) considered the development of the malignant lymphoid hyperplasias in

1. Keim, H. L.: Universal Leukemia Cutis, Arch. Dermat. & Syph. **10**:579 (Nov.) 1924.

2. Fraser, J. F.: A Case for Diagnosis, Arch. Dermat. & Syph. **21**:881 (May) 1930.

various locations in the body, such as the perivascular reticular tissue of the skin, mucous membranes, lymph nodes and spleen. Four cases were reported in which the course corresponded to the clinical syndrome of the condition which dermatologists recognize as mycosis fungoides and in which the pathologic changes in the tissues were those of a neoplastic growth having its origin in the perivascular reticular system of the skin. Further evidence in support of the genetic relation of mycosis fungoides, lymphatic leukemia and lymphosarcoma was presented in a paper by one of us (J. F. F.[3]) in which two cases of clinical mycosis fungoides and one case of lymphoblastoma in a South American squirrel were studied. The histologic picture was the same in all three and was dominated by the presence of cells which undoubtedly had their origin in the reticulo-endothelial cells of the skin. Pollitzer,[4] in discussing this subject, expressed the view that "the cells making up a mycosis tumor were derived from the adventitial cells of the small blood vessels of the skin." The publications on this subject since that time, including those in the foreign literature, bring increasing evidence in support of this view.

NEOPLASM VS. INFECTION

Although an increasing number of pathologists are now in accord with the view that lymphoblastomas are neoplasms, there are those who believe that the essential nature of the process is inflammatory. Webster,[5] for example, called attention to the fact that the infiltrating masses of cells do not destroy but merely push apart the normal tissue elements, a mode of spreading which he claims does not fit in with the biologic characteristics of any known tumor. Ormsby, Ewing and others claimed that the essential lesion in mycosis fungoides is inflammatory. In support of this view it is pointed out that the histologic picture in the prefungoid stage of mycosis fungoides is predominated by the presence of inflammatory features. Ormsby reported one case in which these features persisted throughout the patient's life. In reply to Webster's contention, it is well known that benign tumors follow this mode of spreading, and in any case it is not related to the essential nature of neoplasm. In the prefungoid stage of mycosis fungoides, the round cell infiltration, polymorphism, eosinophils, etc., certainly do not suggest neoplasm, but even in the earliest lesions features of neo-

3. Fraser, J. F.: Mycosis Fungoides: Its Relation to Leukemia and Lymphosarcoma, Arch. Dermat. & Syph. **12**:814 (Dec.) 1925.

4. Pollitzer, S., in discussion on Ketron, L. W., and Goodman, M. H.: Multiple Lesions of the Skin Apparently of Epithelial Origin Resembling Clinically Mycosis Fungoides, Arch. Dermat. & Syph. **24**:779 (Nov.) 1931.

5. Webster, L. T.: Lymphosarcoma, Lymphatic Leukemia, Leucosarcoma and Hodgkin's Disease, Bull. Johns Hopkins Hosp. **31**:458 (Dec.) 1920.

plasm are often present, such as frequent mitoses, irregularity in shape and high chromatin content in the nuclei. In a lesion of this type may it not be that the process is that of a strong defensive reaction to the presence of tumor cells which are fighting for their very lives but which finally win the battle in the fungoid or tumor stage of the disease? Keim [6] presented evidence of the neoplastic nature of the process in these diseases. He reported twenty cases, ten including autopsy studies, with varying clinical pictures but similar pathologic findings in all; that is to say, all the growths had their origin in the cells of the lymphatic series. Keim regarded the hyperplasia as a neoplastic process, and he classified the whole group, including mycosis fungoides, lymphosarcoma, lymphatic leukemia and Hodgkin's disease, under the heading of lymphoblastoma. Warthin, with extensive experience in the study of autopsy and biopsy material, concluded that mycosis fungoides, lymphosarcoma and Hodgkin's disease had all the characteristics of neoplasm and none of an infectious process. The difficulty in differentiating the inflammatory and neoplastic conditions of the lymphoid series of cells is due to the capability of the mother reticular cell of differentiating into so many different forms. In the case of fixed tissues of the body the cell's power of differentiation is fixed and limited to a simple "one way" line of maturation, so that in its pathologic reactions it is not difficult to distinguish metabolic, inflammatory and neoplastic changes from one another, and in most cases it is not difficult to grade the neoplastic degrees of differentiation in a simple straight line of 1, 2, 3 and 4. But when one considers the wonderful display of different forms which may be assumed by the primitive reticular cell, in the permanent forms determined by the location and by their associated function in the organism (e. g., the splenic cell in the pulp of the spleen, the littoral cell in the splenic venules and the Kupffer cell in the liver, etc., all of which are quite different though originating from the same mother cell) and the still more different forms assumed in reaction to special stimuli or changed environment (e. g., the "epithelioid cell" in tuberculosis, the "Mallory cell" in typhoid and the Miculicz cell in lepra), is it any wonder that neoplasms of such a cell should show puzzling and doubtful forms? It appears to us that great help in the solution of the problem in question may be gained from further investigation from the standpoint of the undifferentiated character of the primitive reticular cell.

CONCLUSIONS

A case of lymphoblastoma has been presented in which there were practically all grades of differentiation of the cell of origin, viz., the

6. Keim, H. L.: The Lymphoblastomas: Their Interrelationships, Arch. Dermat. & Syph. **19**:553 (April) 1929.

primitive undifferentiated reticular cell which is probably the cell of origin of all wandering cells.

Evidence has been presented that in this case the origin of the neoplasm was the adventitial reticular cell of the terminal blood vessels of the sinuses of the mesenteric lymph nodes.

It has been shown also that all these nodes equally gave rise to the neoplasm, constituting a "multiple primary affection of a regional group."

ABSTRACT OF DISCUSSION

Dr. William Allen Pusey, Chicago: Dr. Fraser's paper is illustrative of the sort of general classification which has been made in dermatologic studies in the last few years that definitely increases knowledge. It is illustrative of progress. Not long ago there were a group of diseases of uncertain character and apparently unrelated—mycosis fungoides, certain undetermined connective tissue tumors of the skin and certain forms of exfoliative dermatitis and of pruritus—which no one thought of grouping together. First the resemblance of certain tumors of mycosis fungoides to certain tumors occurring in leukemia was discovered; then the cutaneous manifestations of leukemia and pseudoleukemia were found, ranging from pruritus through certain forms of exfoliative dematitis, in which leukemic infiltrations of the skin occurred, to great tumor masses of leukemic origin, some of them identical in appearance with mycosis fungoides and others presenting a different picture. Now they are classed in one group. The more one learns of them the more it seems likely that a new group of dermatoses has been found. Dr. Fraser's case is an interesting contribution to this subject, and another evidence of the essential identity of these conditions. Such general classifications mean progress. They throw light into dark recesses of dermatology; they place understanding where there was formerly ignorance, and they simplify knowledge.

Dr. Fred D. Weidman, Philadelphia: As has been hinted by Dr. Fraser and elaborated by Dr. Pusey, it is the duty of present dermatologists to try to place accurately the particular cell type concerned in the future cases of lymphoblastoma. For example, last year Dr. Wile reported a case of cutaneous torulosis which was at first diagnosed as Hodgkin's disease, and I have had a somewhat similar experience with an experimental cat (Fritchett, M. S., and Weidman, F. D.: Generalized Torulosis Associated with Hodgkin's Disease, Arch. Path. **18**:225 [Aug.] 1934). Of course, what dermatologists are aiming for is the etiologic classification, and I might say that torulosis thus constitutes one of the most clearcut instances available of the ability of a parasite to induce a lymphoblastomatous hyperplasia.

A second example to be added to the list of lymphoblastomas served as the basis of a paper to be presented in Budapest, namely, aleukemic reticulosis. In this form of lymphoblastoma the type of cell change is entirely different from anything I have seen recorded for granuloma fungoides or Hodgkin's disease. It has a very distinctive picture histologically because the reticular cells dominate, and there are important osseous changes seen in roentgen examination in the form of diffuse rarefactions of the long bones.

These two items I wish to place on record for future reference, when attempts are being made to collect definite cell reactions among the lymphoblastomas, and thereafter I shall try to classify and reconcile them with accepted dermatologic entities. I was curious to know whether I could discern any evidence of torulosis

in the lantern slides, but I was unable to do so. I suggest respectfully that any dermatologist who observes cases of cutaneous manifestations in Hodgkin's disease or any similar condition examine specimens of tissue for Torula in frozen sections, for in this way one is less likely to overlook it.

Dr. Lloyd W. Ketron, Baltimore: It seems to me that one is not justified in considering so many conditions with involvement of lymphatic tissue, especially those of a malignant nature, as diseases of the reticulo-endothelial system. If one adheres strictly to the definition of the main characteristic of the cells composing this system, namely, their behavior toward foreign matter, some proof should be advanced that this property is present before cells in various pathologic processes are placed in this category. Of course, the macrophages are derived from other less differentiated cells in which the property of phagocytosis is not well developed, but the whole story of their origin is not yet complete. The various mononuclear cells can be recognized with certainty only by vital staining or in cultures of tissue. Their characteristic features are mainly lost in the usual histopathologic preparations. I showed such a preparation to one of the greatest authorities on tissue culture, requesting that he point out some typical examples of macrophages. He chose plasma cells as most clearly presenting his idea of the characteristic appearance of these cells. I feel that the reticulo-endothelial system has become somewhat of a fad at the present time and that there is a considerable tendency to overstep its limitations.

Dr. J. Frank Fraser, New York: The tendency among recent writers has been to stress the genetic relationship of the various diseases in the lymphoblastoma group and overlook the fact that there are essential differences as well as similarities. While it is true that mycosis fungoides, the lymphosarcomas, Hodgkin's disease and some of the leukemias arise from the same parent cell (the primitive reticular cell), there are essential differences in their clinical course, depending largely on the location and function of their tissue of origin. Mycosis fungoides, for example, has its origin in the perivascular reticular cells in connection with the small blood vessels of the upper part of the corium. It is primarily a cutaneous disease, and sometimes its chief clinical and pathologic manifestations remain confined to the skin throughout the course of the disease. Hodgkin's disease and lymphosarcoma, on the other hand, have their origin in the lymph nodes and only rarely in the skin. Until the etiology of these malignant hyperplasias is known, one will have to be satisfied with the present classification.

In reply to Dr. Weidman as to whether the question of torulosis was investigated, repeated studies were made with the view of determining the presence of bacteria and pathogenic fungi. None was found.

In regard to Dr. Ketrou's criticism, it is well known that the phagocytic character of cells is lost in neoplasms. The primitive reticular cell may be differentiated into the plasma cell. I reported one case of mycosis fungoides in which the lesions were made up of cells which were proved by specific stains to be almost entirely plasma cells (Fraser, J. F.: Mycosis Fungoides, J. Cutan. Dis. **35**:793 [Dec.] 1917).

LEPROSY ASSOCIATED WITH DERMATITIS ATROPHICANS DIFFUSA ET PROGRESSIVA

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Diffuse atrophy of the skin is a symptom complex which may be due to syphilis, tuberculosis or leprosy and possibly to other infectious diseases and to endocrine disturbances. The best known and best understood type of diffuse cutaneous atrophy is acrodermatitis chronica atrophicans of Herxheimer, which has been recognized and individualized as a separate clinical entity after the studies in Europe of Herxheimer and Hartmann, Finger and Oppenheim and later Pautrier and Diss, Wise and others. Many textbooks include under the name acrodermatitis chronica atrophicans all cases of diffuse atrophy of the skin. Erythromelia of Pick has been identified with acrodermatitis of Herxheimer.

The etiology of diffuse atrophy of the skin may be obscure and often impossible to ascertain. The great majority of cases of the Herxheimer-Pick type occur in persons in central Europe, and those cases reported in the United States have been in the foreign-born of central European origin. Fred Wise [1] and Fordyce [2] have reported cases associated with syphilis. Oppenheim [3] was the first to report a case due to leprosy. Audry [4] expressed the opinion that many cases of acrodermatitis chronica atrophicans are angioneurotrophic endocrinids due to syphilis. The differentiation between acrodermatitis chronica atrophicans and scleroderma, once the subject of much discussion, was thoroughly reviewed by Wise [5] in 1923.

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, White Sulphur Springs, W. Va., May 4, 1935.

1. Wise, Fred: Atrophy of the Skin Associated with Cutaneous Syphilis, New York M. J. **101**:1254 (June 19) 1915.

2. Fordyce, J. A.: Symmetrical Cutaneous Atrophy with the Coincident Development of Syphilis of the Skin and Nervous System, J. Cutan. Dis **22**: 155, 1904.

3. Oppenheim, quoted by Wise.[1]

4. Audry: Sur les endocrinides angioneurotrophiques de la syphilis et en particulier sur l'erythromélie de Pick, Ann. de dermat. et syph. **7**:385, 1926.

5. Wise, Fred: (*a*) Acrodermatitis Chronica Atrophicans: The Transition from Infiltration to Atrophy, J. Cutan. Dis. **32**:295, 1914. (*b*) Acrodermatitis Chronica Atrophicans and Its Relation to Scleroderma, New York M. J. **118**:273 (July 18) 1923.

Although cutaneous atrophy is the final result of the infiltrated and nodular lesions of leprosy, diffuse cutaneous atrophy is rarely seen in this condition. Diffuse atrophy is in any case the final stage of inflammation due to specific reaction of the tissues to the offending organism.

The case herein reported has some unusual features which make it worthy of publication. These are the rarity of the condition, the universality of the atrophy, which affected practically the whole cutaneous surface except the palms and soles, the absence of other manifestations of leprosy and, finally, the awakening of the infection and the development of an acute attack of the disease following intramuscular injections of chaulmoogra oil.

REPORT OF A CASE

History.—V. G. G., a Cuban mulatto 46 years of age, a farm-hand, was admitted to the University Hospital of Havana on May 2, 1933, complaining of weakness and extensive atrophy of the skin.

In 1911 the patient had a chancre and inguinal adenitis, which were treated locally and healed in a few days. He was married in 1915 and had several children, still alive and healthy. His wife had two miscarriages, but no member of his family had any symptoms of syphilis. In August 1931, while in apparently perfect health, the patient experienced sudden chills, muscular and articular pains and moderate fever which lasted for about two weeks. A month later he noticed numerous reddish patches disseminated over the cutaneous surface, which caused no subjective sensations and which persisted for several months, ending in desquamation. Some of these patches would disappear while others came out. The skin gradually became dry, and the patient noticed that perspiration was very slight, even on very warm days. The hair of the body fell off, and that of the scalp turned dry and lusterless. On a few occasions the patient had had epistaxis. Since that time he had lost considerable weight, had a constant feeling of weakness and finally had to stop work and seek medical advice. At no time during his illness had he noticed nodules on his face or ears or on any other part of his body.

General Examination.—The patient was a dark-skinned mulatto about 6 feet (180 cm.) tall and weighing 140 pounds (63.5 Kg.), looking considerably older than his age. Examination of the respiratory, circulatory, digestive and genitourinary organs revealed no abnormality. The temperature was normal on admission. Neurologic examination revealed diminished tonus in the extensor muscles of the upper extremities but no paralysis or atrophy; the knee jerks were slightly diminished; coordination was normal; Babinski's, Romberg's and Argyll-Robertson's phenomena were absent, and his pupils reacted normally to light and in accommodation. Examination of the cutaneous sensations showed zones of anesthesia and paresthesia in the upper third of the external aspects of both legs and on the cubital border of both forearms. Both thermal and painful sensations were abolished or diminished. The mucous membranes were pale and the teeth decayed.

Cutaneous Examination.—The skin was of café-au-lait color and appeared irregularly mottled, in places smooth and dry and in others wrinkled and squamous. The hairs were entirely missing except for a few on the pubic region. The skin of the face presented fewer changes than that of the rest of the body, but there were alopecia of the external half of the eyebrows and slight erythema of

the cheeks, which were sunken and scaly. The scalp was dry and scaly, with alopecia of the anterior third, and lusterless, discolored hair on the rest of the surface.

The skin of the neck, particularly that of the lateral aspects, was atrophic, very thin and wrinkled, presenting the aspect of crumpled cigaret paper. Toward the back of the ears the skin was extremely wrinkled, with the formation of

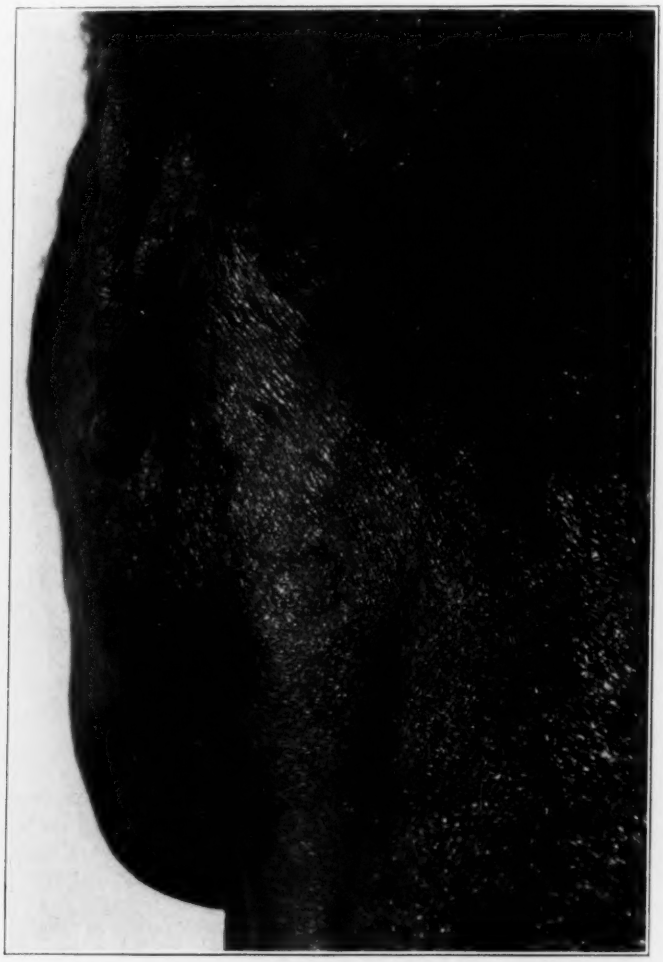

Fig. 1.—Photograph showing the condition on the neck.

mosaic-like crisscross lines. This same type of atrophy was observed on the back, shoulders and chest, but here the desquamation was branny and the atrophy was in the form of large plaques of irregular outline. The skin outside the limits of these plaques was atrophic, but less so. The borders of the atrophic areas were diffuse, with no definite line of demarcation.

On the extremities, but particularly on the elbows and knees, the atrophy was extreme, the skin being wrinkled and soft, like fine velvet. The dorsa of both hands and feet were equally affected, and the subcutaneous veins could be seen as prominent blue lines. The finger-nails showed total leukonychia with diffusion of the lunulae, and the toe-nails were hypertrophic and distorted.

Fig. 2.—Photograph showing the condition on the back.

The integument of the anterior surfaces of both legs was extremely atrophic, but here the aspect was entirely different and the skin was tense, waxy, shiny, pale and adherent to the subjacent structures and presented dilated follicles filled with corneous plugs. The general aspect was that of atrophying scleroderma.

On the abdomen and in the perigenital region the skin, although thin and atrophic, was less markedly so. The skin of the gluteal regions and thighs was

also atrophic and scaly, appearing as if dusted with flour. On the popliteal spaces the skin was almost normal.

In short, the atrophy affected the greatest part of the cutaneous surface, being most marked on the neck, back and extremities. Cutaneous sensations to pain and temperature were normal except in the areas mentioned.

Laboratory Examinations.—The blood count was: red cells, 4,100,000; hemoglobin content, 65 per cent, and white cells, 7,500, with polymorphonuclears, 67 per cent, lymphocytes, 23 per cent, mononuclears, 8 per cent, and eosinophils, 2 per cent. The urea content was 29 mg. per hundred cubic centimeters of blood; the sugar content was 98 mg. per hundred cubic centimeters. The Wassermann and Kahn reactions of the blood were four plus. Examination of the cerebro-

Fig. 3.—Photograph showing the condition on the hands.

spinal fluid revealed a normal amount of globulin, no cells, negative Wassermann and Kahn reactions, and Lange's colloidal gold curve, 0000000000. Urinalysis yielded negative results. Roentgen examination of the long bones revealed chronic periostitis of the anterior crest of each tibia. Bacteriologic examination of smears of the nasal mucus and of the lymph gave repeatedly negative results for Hansen bacilli.

Histopathology.—Two specimens were taken for biopsy, one from the back and one from the left arm. They were fixed in Zenker's solution and in formaldehyde and embedded in paraffin, and the sections were stained with hematoxylin and eosin and orcein and van Gieson's preparation. Unfortunately a specimen was not taken of the sclerodermic tissue of the legs.

Examination of the sections recorded the corneous layer in desquamation; the granular layer was absent in some places and in others was represented by one or two rows of cells; the rete malpighii was atrophic, with only three or four rows of cells; the basal layer was strongly pigmented and the interpapillary processes were short and wide and in some places almost absent. The corion showed short and wide papillae, and the reticular layer was composed of short bundles of

Fig. 4.—Photograph showing the condition on the knee.

collagenous fibers interlaced in various directions. The blood vessels were thickened and surrounded by a cellular infiltration composed of lymphocytes, plasma cells and very large oval or irregular badly stained cells with vacuolated or foamy protoplasm and eccentric nuclei. These cells were found in small numbers in practically every cellular clump and had the characteristics of the lepra cells of Virchow. The intima of the large vessels of the deep corion was edematous and in proliferation.

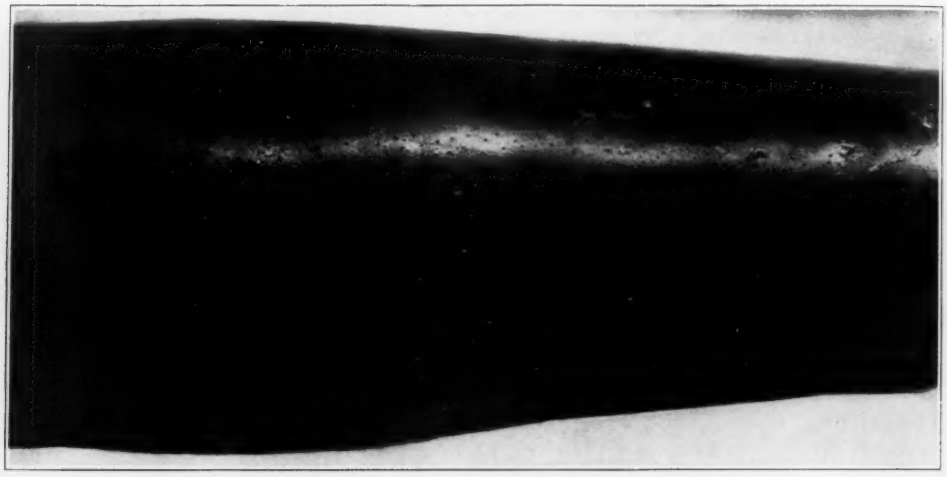

Fig. 5.—Atrophying scleroderma of the legs.

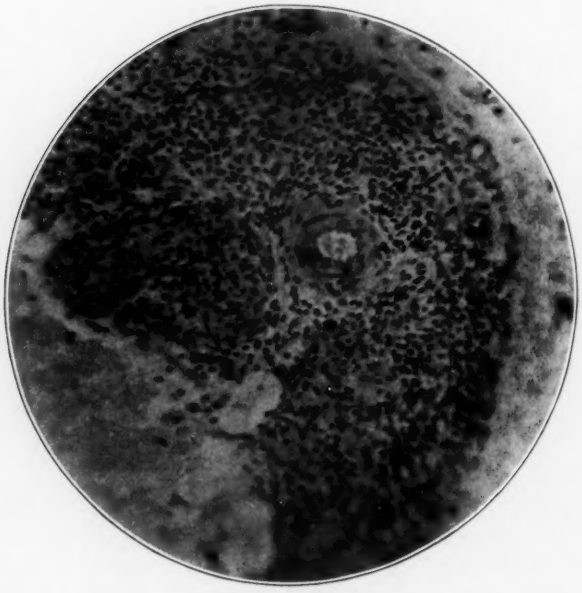

Fig. 6.—A photomicrograph showing endovasculitis and perivasculitis with infiltration of lymphocytes and lepra cells.

Sections stained with Van Gieson's preparation showed an unusual number of thin horizontal fibers forming a band along the dermo-epidermic limit and fibrosis of the reticular layer. This dermo-epidermal band of fibrous tissue has also been reported in cases of acrodermatitis chronica atrophicans by Wise, Pautrier and Diss [6] and Masson and Diss.[7]

Sections stained with orcein showed few distorted and disrupted elastic fibers in the papillary layer, but in the deep corion the elastic tissue was abundant and in places seemed more abundant than in normal skin. This phenomenon has also been observed in cases of acrodermatitis chronica atrophicans by Pautrier, Masson and Diss.

Attempts at staining acid-fast bacilli in these tissues were unsuccessful.

Course.—The patient was kept in bed, and a dose of 1 cc. of ethyl esters of chaulmoogra oil was given intramuscularly. Two other injections of 2 cc. each at weekly intervals were followed by severe headache, general malaise and fever with a temperature which rose intermittently up to 103 F. in the evening. The patient complained of chills and extreme weakness and would not take food. At the same time a number of edematous, infiltrated, boggy dark red lesions about the size of a hazelnut appeared on the chest and abdomen and later on both thighs. These lesions were crowded together and formed an almost uniform cobbled surface. The anterior surface of the thighs became infiltrated *en nappe* without the formation of individual nodules. On the arms and forearms a few infiltrations of diffuse character appeared, varying in size from 2 to 3 inches (5 to 7.6 cm.) in diameter. Examination of the lymph from this infiltrated skin revealed numerous acid-fast rod bacilli with all the characteristics of the Hansen bacillus.

The patient died of marasmus at the end of six weeks. Permission for necropsy was not obtained.

COMMENT

The obvious clinical diagnosis in this case was diffuse atrophy of the skin with scleroderma-like changes of the lower extremities. The history of chancre and the positive serologic tests pointed to a possible syphilitic etiology, but the presence of anesthetic areas and the large number of foamy cells in the perivascular infiltrate made the diagnosis of leprosy more likely. The Wassermann and Kahn reactions are often strongly positive in cases of leprosy in the absence of syphilis. The diagnosis of leprosy was later confirmed by the finding of Hansen's bacilli in the cutaneous lesions during the acute stage following the administration of chaulmoogra oil.

The development of nodular and infiltrated lesions *en nappe* after the injection of chaulmoogra oil is interesting and according to my interpretation was due to the biotropic action of the drug and similar to the Herxheimer-Jarisch reaction observed in persons with syphilis under similar circumstances. The defensive reaction of the reticulo-endothelial

6. Pautrier and Diss: Dermatite chronique atrophiante des deux membres inférieurs (Herxheimer-Pick) et lésions atrophiques circonscrites à type d'anetodermie de Jadassohn, Bull. Soc. franç. de dermat et syph. **33**:307, 1926.

7. Masson and Diss: Dermatite chronique atrophiante (Herxheimer-Pick) avec tumeurs, Bull. Soc. franç. de dermat. et syph. **33**:768, 1926.

system, stimulated by the specific action of the drug, explains the rapid appearance of these cutaneous infiltrations. This phenomenon is frequently observed in cases of leprosy, the reaction being at times so severe that treatment has to be discontinued at least temporarily.

The differential diagnosis between a condition like that in this case and acrodermatitis chronica atrophicans of Herxheimer may be a matter of opinion. No doubt many dermatologists would prefer to call the condition "acrodermatitis chronica atrophicans leprosa," while others, who look on Herxheimer's disease as an entirely separate clinical entity, would object to that nomenclature. The fact remains that the etiology of acrodermatitis is still unknown, and as long as it remains so the classification of this condition as a separate clinical entity is doubtful. In any case, according to Wise, in referring to the differentiation between diffuse idiopathic atrophy and acrodermatitis atrophicans, "in the end stages of these two forms of cutaneous atrophy, the clinical appearances resemble each other so closely that a differentiation is difficult or not possible: both are designated as dermatitis atrophicans diffusa et progressiva."

In the case here reported the evolution and the clinical aspect as well as many features of the histologic picture were similar to, if not identical with, those in the cases of dermatitis chronica atrophicans reported in the literature. The only definite characteristics in my case were the great number of vacuolated or foamy histiocytes in the cellular infiltrate and the appearance of lepra cells of Virchow and the presence of Hansen's bacilli in the lymph during the terminal acute outbreak.

SUMMARY

A case of dermatitis chronica atrophicans diffusa et progressiva apparently due to leprosy and of two years' duration is reported in a Negro. There were no other cutaneous lesions of leprosy before treatment was instituted.

The differential diagnosis between this condition and acrodermatitis chronica atrophicans of Herxheimer is discussed, and comments are made on the relation between the conditions.

The injection of small doses of ethyl esters of chaulmoogra oil gave rise to an acute exacerbation, with the development of cutaneous infiltrations, hyperpyrexia and systemic toxi-infectious symptoms, which ended in death after six weeks. Hansen's bacilli, which were absent on previous examinations, were readily demonstrated during the terminal acute phase.

Consulado 7.

MAGGOT THERAPY IN DERMATOLOGIC PRACTICE

REPORT OF A CASE OF CHRONIC ULCERATING GRANULOMA OF UNDETERMINED ETIOLOGY IN WHICH MAGGOT THERAPY WAS USED

SAMUEL AYRES JR., M.D.

NELSON PAUL ANDERSON, M.D.

AND

G. MOSSER TAYLOR, M.D.

LOS ANGELES

At last it would appear that one of God's lowliest creatures, the fly, has found his niche of usefulness in the scheme of things.

The beneficial effects of maggots in the treatment of infected wounds have been observed on a number of occasions over a period of several hundred years, but it remained for William S. Baer, clinical professor of orthopedic surgery at Johns Hopkins Medical School, to make the first deliberate therapeutic application of this principle. The first report [1] dealing with the treatment of chronic osteomyelitis by the use of maggots was published in 1929, and the results were so gratifying that this method of treatment has now become an accepted procedure and numerous reports have appeared in medical literature amply confirming the results which Baer had obtained.

Practically all of the reports on maggot therapy up to the present time have appeared in surgical or orthopedic journals. The subject does not seem to have attracted the attention of dermatologists, and probably it would not have come to our attention in the present case if it had not been forced on us by the patient himself, who is a surgeon, and by one of the authors, who is an orthopedic surgeon.

The majority of cases in which this treatment has been used were instances of chronic osteomyelitis, although a few cases of acute osteomyelitis have been reported. Tuberculous as well as staphylococcic lesions have been successfully treated. Livingston [2] reported one hundred cases, including instances of chronic osteomyelitis, infected wounds and compound fractures, with cure in 95 per cent. Weil, Simon and

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Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, White Sulphur Springs, W. Va., May 2, 1935.

1. Baer, W. S.: A Viable Antiseptic in Chronic Osteomyelitis, Proc. Interstate Post-Grad. M. Assemb. North America **5**:370, 1929.

2. Livingston, S. K.: Maggots in the Treatment of Chronic Osteomyelitis, Infected Wounds and Compound Fractures, Surg., Gynec. & Obst. **54**:702 (April) 1932.

Sweadner [3] obtained successful results in all but one of a series of fifty-six cases. This series included twenty-nine cases of lesions of the soft tissues, such as felons, tuberculous inguinal adenitis, large areas of cellulitis, infected abdominal incisions following appendical abscess and infected stumps of amputated limbs. In this series there were six cases of gas bacillus infection. Mild urticaria was noted in three cases after the implantation of maggots.

A brief account of the incident which led Baer [4] to employ this novel therapeutic agent follows. After a certain battle during the World War, Baer had occasion to observe two soldiers who were brought to the hospital with compound fractures of the femur and large flesh wounds of the abdomen and of the scrotum:

> For seven days they lay on the battlefield without water, without food, and exposed to the weather and all the insects which were about that region. On their arrival at the hospital I found that they had no fever and that there was no evidence of septicemia or blood poisoning. Instead, their condition was remarkably good, and if it had not been for their starvation and thirst, we would have said they were in excellent condition. When I noticed the extent of the wounds, of the thigh particularly, I could not but marvel at the good constitutional condition of the patients. At that time the mortality of compound fractures of the femur was about 75 to 80 per cent—even when the wounded had the best of medical and surgical care that the Army and Navy could provide. . . . I could not understand how a man who had lain on the ground for seven days with a compound fracture of the femur, without food and water, should be free of fever and of evidences of sepsis. On removing the clothing from the wounded part, much was my surprise to see the wound filled with thousands and thousands of maggots, apparently those of the blow-fly. These maggots simply swarmed and filled the entire wounded area. The sight was very disgusting and measures were taken hurriedly to wash out these abominable looking creatures. Then the wounds were irrigated with normal salt solution and the most remarkable picture was presented in the character of the wound which was exposed. Instead of having a wound filled with pus, as one would have expected, due to the degeneration of devitalized tissue and the presence of the numerous types of bacteria, these wounds were filled with the most beautiful pink granulation tissue that one could imagine. There was practically no bare bone to be seen and the internal structure of the wounded bone, as well as the surrounding parts, was entirely covered with the pink, rosy granulation tissue which filled the wound. Bacterial cultures were made, and while one found a few staphylococci and streptococci still remaining, they were very few in number and not sufficient at that time to cause a pus formation. These patients went on healing, notwithstanding the fact that we removed their friends which had been doing such noble work.

It was not until ten years later that Baer began to apply this lesson obtained on the battlefield to surgery in time of peace. Many improve-

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3. Weil, Grover C.; Simon, Richard J., and Sweadner, Walter R.: Larval or Maggot Therapy in the Treatment of Acute and Chronic Pyogenic Infections, Am. J. Surg. **19**:36 (Jan.) 1933.

4. Baer, W. S.: Treatment of Chronic Osteomyelitis with the Maggot Larva of the Blow-Fly, J. Bone & Joint Surg. **13**:438 (July) 1931.

ments have been made since the first attempts to duplicate nature's methods. In the first place, it was found that only certain of the meat-eating flies were suitable for use in the treatment of wounds. Weil, Simon and Sweadner recommended the flies belonging to the subfamily Calliphorae, especially the bronze-green blowfly, Lucilia sericata or Lucilia caesar. The larvae of these flies will starve on clean granulation tissue, whereas those of the flesh-flies belonging to the family Sarcophagidae are able to destroy living tissue and should be avoided. Furthermore, the maggots should be aseptic, since several cases of tetanus occurred in the early period of maggot therapy as a result of the use of infected larvae. Sterilization may be accomplished by soaking the eggs for one-half hour in a 1 to 1,000 solution of mercury bichloride containing 0.5 per cent. hydrochloric acid, by hatching them in sterile containers and by feeding them on sterilized food. Several other methods of sterilization have also been employed. A number of biologic laboratories are now able to supply aseptic "surgical maggots" by air-mail.[5] The method of application of the maggots to the cutaneous lesion is described in the history of the case. In this instance treatment with maggots was continued for eight weeks, and approximately another eight weeks elapsed before the wound was entirely healed. Baer mentioned a period of from six to seven weeks in children and a little longer in adults as the time required for an osteomyelitis wound to heal under maggot therapy.

The beneficial effects of the maggots are probably dependent on several factors. Baer emphasized the change in reaction from acid to alkaline which occurs the second or third day following the introduction of maggots. Maggots also act as scavengers, devouring the necrotic tissue. Livingston stated the belief that the copious production of serum in the wound is of benefit, and he suggested that its secretion may be due to local stimulation from the continuous crawling of the maggots and from the opening of new channels for the free flow of tissue fluids as a result of the persistent attacks of the maggots on the necrotic tissue. Most observers feel that there is some biologic reaction between the maggots and the tissues, resulting in the liberation or formation of some kind of active principle which is of prime importance in the healing process. Livingston claimed to have isolated this active principle and to have cured several patients by its use. He expressed the opinion that it acts as a bacteriophage, but other investigators do not concur in this.

REPORT OF CASE

D. E. G., aged 31, was first seen on Oct. 11, 1932, with an ulcerated lesion on the anterior aspect of the left thigh. The lesion had been present about nine weeks and had begun as a palm-sized area of redness and induration. There was

5. The Lederle Laboratories supplied the maggots used by us.

an accompanying fever, the temperature fluctuating to a point as high as 102 F. for about a week. Finally the area was incised, and about 1 ounce (30 cc.) of pus was evacuated.

For nearly three weeks prior to the onset of the lesion on the thigh, the patient had had an attack of epidermophytosis of the feet and several infected mosquito bites on both ankles. He had had intermittent attacks of epidermophytosis of the feet and deep vesicular and exfoliating lesions of the hands over a period of years. The patient had never had any previous lesions similar to the present ulcer on the thigh and did not recall having had lymphangitis of the foot or ankle preceding the onset of the ulcer.

About a year and a half prior to this visit, while practicing surgery in Shanghai, China, as a medical missionary, the patient acquired a streptococcic infection of the left hand following paronychia. Ten operations ensued, finally resulting in the amputation of the hand and the lower half of the forearm. The patient left China fifteen months prior to his first visit and traveled in Europe for eight months; he had been in California for five months.

The lesion on the thigh had been subjected to the following procedures before coming under our observation:

1. The lesion had been incised and drained. Merthiolate and mercurochrome had been applied, and the lesion granulated to the size of a dime or less and then sloughed again.

2. Cultures showed Streptococcus haemolyticus.

3. For the previous week the lesion had been cauterized daily with phenol and iodine.

4. Three days previously the lesion had been burned out with actual cautery.

Examination revealed a well nourished young man with no apparent evidence of sepsis. On the upper anterior aspect of the left thigh was a deep granulomatous-looking ulcer about the size of a quarter surrounded by a fairly wide zone of erythema and of deep induration. The lesion was not especially tender. The inguinal glands were not enlarged. The feet were normal except for marked thickening and roughness of the nails of both big toes and some thickening of several other nails.

Without going into detail, the various laboratory examinations and therapeutic attempts will be summarized:

The Kahn test and the Frei test gave negative results. A smear made from a fragment of tissue removed from the ulcer and stained by Wright's method failed to reveal any Leishman-Donovan bodies. Many cultures were made on various types of mediums: Löffler's medium, Petroff's medium, veal infusion broth, blood agar and Sabouraud's medium. Inoculations were made both aerobically and anaerobically. The following organisms were grown from the ulcer: Staphylococcus albus and Staphylococcus aureus, a gram-positive diplococcus, Str. haemolyticus and an unidentified fungus which was obtained only once in many cultures and could not be subcultured. Fungi belonging to the Epidermophyton group were obtained by culture from the thickened toe-nails. Extracts of these organisms (except for the fungus isolated from the ulcer) were prepared and tested intradermally. Staph. albus and Staph. aureus gave positive results within fifteen minutes but negative results at the end of twenty-four hours. Extracts of Epidermophyton interdigitale isolated from the foot gave a negative reaction. Extracts of Str. haemolyticus and the diplococcus (a form of Str. haemolyticus) showed very slight reaction in fifteen minutes, but a strongly positive reaction in twenty-

four hours, both showing an area of redness the size of a 5 cent piece with a central papule. The control gave a negative reaction.

Numerous specimens of pus examined under the microscope in preparations of 40 per cent potassium hydroxide failed to reveal any fungi. Smears stained by Gram's method showed Staphylococci, gram-positive intracellular and extracellular diplococci, and streptococci in long and short chains.

A specimen for biopsy was obtained when the entire lesion was removed surgically. The section showed an ulcer with a necrotic base. Beneath this there was fibrous tissue infiltrated with small round cells, eosinophils and leukocytes. A few scattered giant cells were seen. The tissue lacked the morphologic characteristics of tuberculosis. A careful search failed to reveal any organisms other than streptococci. The diagnosis of the condition was chronic ulceration. A guinea-pig was given an injection of macerated tissue removed from the ulcer at operation. No ill effects were noted. After six weeks the guinea-pig was killed and an autopsy was performed. No pathologic changes were found.

The following local treatment was employed: Wet dressings of compound solution of copper and zinc sulfate, 2 per cent gentian violet, tincture of metaphen, Castellani's carbolfuchsin paint and bacteriophage were applied, and a total of 4 skin units of roentgen radiation was given in divided doses.

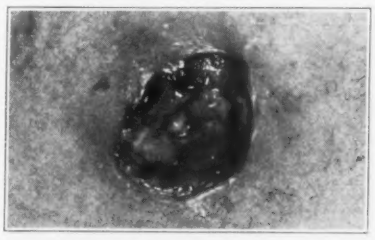

Fig. 1.—Appearance of ulcer on first examination (duration, nine weeks).

Systemic treatment consisted of the administration of compound solution of iodine U. S. P. and potassium iodide by mouth, up to 60 grains of the latter being given a day; nine intravenous injections of sodium iodide of 2 Gm. each; twenty-eight intravenous injections of diplococcus and streptococcus vaccine; two intravenous injections of neoarsphenamine; six intravenous injections of antimony and potassium tartrate; ten intravenous injections of gold and sodium thiosulfate, and ten intramuscular injections of fuadin.

In addition to the treatment mentioned, the patient, on his own responsibility, had a surgeon excise the entire ulcerated area by means of the endotherm knife, but the new wound became involved and the end-result of the operation was the substitution of a huge ulcer for a small one.

These various measures occupied a period of eleven months, and the lesion at the end of this time was about four times as large as it was at the beginning. From the time the maggots were applied until the lesion was entirely healed, a period of approximately four months elapsed; maggots were used for eight weeks.

At the time the treatment with maggots was begun the patient had just had six injections of gold and sodium thiosulfate without any appreciable benefit, and four more injections were given after maggot therapy was introduced. From a scientific standpoint this is unfortunate because it complicates the interpretation of the benefits of maggot therapy, but by this time the lesion had become so

large and so deep that we were rather desperate, fearing a possible rupture into the femoral blood vessels, and we were using any and all measures that seemed reasonable.

The ulcer now occupied an area nearly as large as a hand, 17 cm. by 7 cm., and was surrounded by a wide, brawny indurated and erythematous zone. The base of the ulcer presented a coarse beefy-looking appearance showing cleavages and fissures. The edges were deeply undermined and contained pus and necrotic tissue, and rather deep sinuses could be probed. Within a week after the introduction of the maggots, all of these foul undermined edges had been cleaned of the bulk of their necrotic débris and the surface of the ulcer became the meaty-red of active granulation tissue, but the size of the lesion remained approximately the same until after the last batch of maggots had been removed.

The method of application of the maggots to this type of cutaneous lesion is described in detail as follows: To prepare the patient for this treatment a plaster of paris single spica cast was applied from the waist to the knee on the side of

Fig. 2.—Condition of ulcer after fifteen months of unsuccessful treatment. Note the undermined edges.

the lesion. In order to expose the ulcer, a large window had to be cut and compensated for by a steel reenforcement built into the cast. Thus the affected part was put at complete rest for two purposes: (1) Healing the site of infection requires rest, general and local, and (2) all movements of the patient that might disturb the adhesion of the cage to the skin must be minimized. In spite of all these detailed precautions, the cage would loosen at times and permit mature maggots to gather here and there underneath it, torment the patient and set up dermatitis. This later made the application of the next cage difficult and sometimes forced a rest of from two to four days between inoculations. It would have been impossible to keep the cage in place without the use of the cast.

The wound itself was cleansed of loose débris by irrigation with physiologic solution of sodium chloride and mopped dry. The cage was then prepared of sponge rubber and 100 mesh brass screening. The best sponge rubber for this purpose is a Russian product which is soft and pliable, molding easily to the irregular contours of the region and requiring little adhesive force to hold it in place. Rubber cement was found to be the most efficient adhesive substance, better

than liquid adhesive or adhesive plaster. After the contacting surfaces of the skin and the cage were cleansed well with ether, rubber cement was spread on both surfaces and allowed to dry partially, and the cage minus the screen top was placed in position against the skin and held there until it thoroughly adhered.

The skin inside the cage and to the edges of the wound was protected by a thick adhesive ointment composed of zinc oxide, kaolin, hydrous wool fat and petrolatum. This was the best method of preventing the sensations of the crawling maggots and the irritation of the skin by the secretion. Flexible collodion would soon loosen, permitting the larvae to get underneath.

The maggots, thoroughly chilled by placing their container in ice water, were rinsed into a cone of filter paper and then tediously teased into the wound by applicators and by the force of a fine stream of cold sterile saline solution. As they were numbed with cold, very few got away before the screen top of the cage was fixed in place. As Baer stated, the maggots should be numerous enough so that the dead tissue may be actively attacked on all sides.

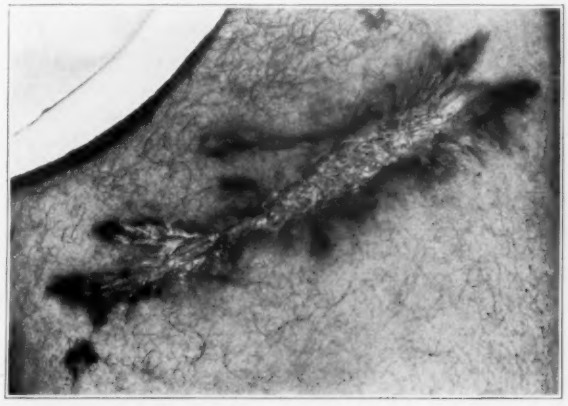

Fig. 3.—Complete healing after the application of maggots for eight weeks.

The screen was secured to the cage by rubber cement and rubber used for patching inner tubes. Just before the maggots were placed in the wound, the screen and the top of the cage were prepared with at least two or three layers of rubber cement. The screen was of such a size that it covered just one half of the walls of the cage all around, thus allowing the patching rubber to adhere thoroughly to the cage itself and to overlap the screen, to which it also adhered.

The entire cage was fastened to the skin by adhesive plaster lapped from the top of the cage down the sides to the skin. With each new batch of maggots a complete new cage had to be prepared.

A 200 watt Mazda light was placed over the cage, and the whole contrivance was surrounded by an improvised tent so that the patient and his attendant might sleep. The light stimulated the activity of the maggots and drove them down into the recesses of the sinuses and fissures, besides furnishing therapeutic heat for the tissues themselves.

For twenty-four hours the patient was reasonably comfortable. The maggots grew rapidly, and their cigar-shaped bodies, clustered in bundles, squeezed into the sinuses and fissures. Their work soon began in earnest. Vessels and nerves were laid bare. Pain became the dominant issue—sharp, biting, stinging pain, varying with

the degree of activity of the maggots. Dilaudid, 1/32 grain every three to four hours, was required during the height of the pain, which extended over two or three days. Even this would not have been enough had it not been for the fact that every one connected with the case, and most of all the patient himself, felt that this was the method of last resort, and therefore he was encouraged to continue and endure. At times the maggots had to be removed before the time was fully up.

Profuse secretions were drained through the screen by having the patient turn on his side and using the capillary attraction of absorbent cotton or cellulose. The secretions were rather thick and brownish red with a sour, disagreeable odor. No hemorrhages occurred, but the activity of the maggots produced more or less constant capillary oozing.

Objectively the patient presented few symptoms. With the more active batches there were chills and fever, although the white cell count and the differential count showed no appreciable change. At first when this happened, the maggots were immediately removed, in the fear of some serious extension of the infection which had proved so tragically virulent.

When the cage was removed, the few remaining maggots were extracted from their burrowings by a thumb forceps, and the wound was irrigated with physiologic solution of sodium chloride. One full day and frequently two or three days was allowed for a complete rest, during which time only dressings of saline solution were used, as the application of any antiseptics might affect the viability of the next colony of maggots. It was found that there was considerable difference in vigor and efficiency of the various consignments. The length of time involved in shipping was a factor. In handling the maggots, great care had to be taken not to have them in contact with any irritant, such as the acrid vehicle of the rubber cement, ether or an antiseptic. The discharge had at all times to be minimized, as the secretions would clog the respiratory channels of the larvae and cause asphyxiation.

The last implantation contained the most active and most numerous maggots of all. The administration of analgesics was doubled, but the pain became unbearable. The patient had had all the punishment he could stand. He could go no further. But eight weeks later the ulcer was completely healed.

COMMENT

The diagnosis of this lesion is still doubtful. It may represent an unusual reaction to the streptococcus or a mixed infection; the onset of fever would suggest such an etiology, as well as the positive cultures and smears and the positive intradermal reactions. The fact that a fungus was found in only one out of many cultures and that microscopic examinations of smears consistently gave negative results would argue against a fungus as a cause. Perhaps it would be better to call the lesion an ulcerating granuloma of undetermined etiology.

We have not had an opportunity to apply maggot therapy in other instances of cutaneous lesions, but in view of the beneficial results in this case and of the uniformly good results in chronic osteomyelitis of both pyogenic and tuberculous types, it appears that dermatologists have overlooked a useful therapeutic agent. This method would seem indicated in any case of a chronic ulcerative or granulomatous process

in which ordinary measures have failed. There is undoubtedly considerable psychic resistance to be overcome in instituting this type of therapy. In fact, the patient in the case just described, himself a physician, stated while still under treatment that it was "a method to be used only in extremis."

SUMMARY

The therapeutic use of maggots in the treatment of chronic infected wounds is of recent development and has been confined almost exclusively to surgical conditions, such as osteomyelitis.

The technic of application is described, and the current theories offered to explain the beneficial results are outlined.

A case of a chronic ulcerating granuloma of a year's duration, in which the introduction of maggot therapy was followed by complete healing, is presented.

The case described suggests the applicability of maggot therapy to other types of dermatologic conditions involving chronic ulcerative or granulomatous processes, such as amebic ulceration of the skin, coccidioidal granuloma and the spreading ulcerative and gangrenous infections of the abdominal wall which occasionally follow appendectomy, such as those reported by Duemling and others.[6]

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DISCUSSION

Dr. James H. Mitchell, Chicago: In view of the fact that Dr. Ayres offered no diagnosis in this case, I wish to suggest one. The presence of Str. haemolyticus in the ulcer leads me to suggest that he was dealing with a case of Str. haemolyticus pyoderma. About ten years ago I presented a patient before the Chicago Dermatological Society with a lesion on the arm. Since then I have seen a number of lesions having the undermined bluish border which is so characteristic of the condition. The serum is usually clear. Other organisms are present, but Str. haemolyticus is the causative organism. In my experience it has been possible to clear up the condition without resorting to such a heroic measure as maggot therapy.

Dr. Paul E. Bechet, New York: If my hearing is correct, Dr. Ayres considers maggot therapy to be of very recent origin. I do not remember the exact reference, but I clearly remember that Dominique Jean Larrey, Napoleon's great surgeon-in-chief, mentioned the beneficial effects of maggot therapy more than one hundred years ago.

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6. Duemling, W. W., and Elston, R. W.: Postoperative Gangrenous Ulcer of the Abdominal Wall, Arch. Dermat. & Syph. **27**:624 (April) 1933. Brown, W. L.; Brown, C. P., and Murphy, J. L.: Progressive Postoperative Gangrene of the Abdominal Wall Following Appendectomy, J. A. M. A. **101**:1876 (Dec. 9) 1933. Baker, W. H., and Terry, C. C.: A Case of Postoperative Progressive Gangrene of the Skin, ibid. **98**:138 (Jan. 9) 1932.

DR. D. L. SATENSTEIN, New York: In 1918-1919 I was assigned to do some work in Jerusalem among Arabian patients at the first clinic established in that locality. It was not unusual for patients to be brought in by camel and deposited on the ground to wait several hours for the clinic to open. It was astonishing to see those persons with their wounds completely filled with maggots, and often the wounds were perfectly clean after the maggots were washed out. All that was ever done was to have the wound washed out with physiologic solution of sodium chloride, and there was practically never any trouble in those instances. Of course, one was not dealing with sterile maggots.

DR. E. W. ABRAMOWITZ, New York: I wish to offer another diagnosis of the condition reported by Dr. Ayres, i. e., pyoderma gangrenosum. Essentially this is a suppurative destructive process of the skin, frequently associated with an infection of long standing somewhere else in the body. Attention has been called to such cases by Cullen, Brunsting and others, and as was shown by Meleney it seems that these lesions are very frequently due to the symbiotic growth of Str. haemolyticus and Staph. albus.

I have had several patients in whom extensive ulceration was due to a symbiotic growth of the bacteria mentioned. One patient with pyoderma gangrenosum made a very excellent recovery on a diet very rich in vitamins, and I suggest this method of therapy to Dr. Ayres for trial, in case he comes across another condition of this type.

DR. RICHARD S. WEISS, St. Louis: I hesitate to make a diagnosis from the description and the pictures, but it occurred to me that this might be a case of amebic ulcers. The pictures resemble somewhat those in cases described by Engman Sr. and by Engman Jr. and Meleney. I should like to know whether Dr. Ayres made any search for amebas.

DR. SAMUEL AYRES JR., Los Angeles: I am grateful for the suggestions offered as to diagnosis. I think this case must differ from the one Dr. Mitchell described, for the lesion contained not clear serum but a great deal of pus and necrotic tissue. This patient was shown before the Los Angeles Dermatological Society several times and was examined by many clinicians without avail. After the removal of the maggots, alternate hot and cold applications were used. The patient had an idea that eucalyptus charcoal had a healing function, and this was also applied. Whether it had any effect I do not know. All the undermining was gone when the maggots were removed, and I think the lesion would have healed without any further attention.

There are two drawbacks to maggot therapy. First, it is expensive, and, second, there is considerable discomfort. I have another patient under the same treatment now with an identical type of lesion on the upper part of the arm that has been present for about a year, gradually spreading and extending. There is the same secretion, and Str. haemolyticus has been obtained. We thought of amebas but did not find any. I think that the lesion probably represented a symbiotic growth of staphylococci and streptococci, as Dr. Abramowitz mentioned.

COCCIDIOIDAL GRANULOMA

COMPARISON OF THE NORTH AND SOUTH AMERICAN DISEASES WITH SPECIAL REFERENCE TO PARACOCCIDIOIDES BRASILIENSIS

JAMES W. JORDON, M.D.
AND
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PHILADELPHIA

In the etiology of coccidioidal granuloma, Coccidioides immitis is commonly regarded by North American physicians as the one and only agent. It is well known that the disease occurs also in South America, but it is not common knowledge that Almeida [1] recently called attention to notable discrepancies between the South American strains of coccidioides which indicate that the situation has become complicated by the entrance of another new species of fungus on the scene, namely, Paracoccidioides brasiliensis (Splendore, 1912, emended by F. de Almeida, 1929-1930). In short, when P. brasiliensis was originally observed it was not critically compared with the original, true C. immitis and was erroneously regarded as being identical with it; ergo, the disease that was being studied was called coccidioidal granuloma. Surprising as it may seem, it now appears that in South America C. immitis is rare; in 257 reports of cases of coccidioidal granuloma in South America collected by Almeida it was identified but twice as the cause of the disease (Wernicke's [2] original case and Mazza and Parodi's [3] case). Curiously, Beck's recent compilation of reports of cases of true coccidioidal granuloma in North America included 254 cases, almost the same number. Equally striking are certain differences between the forms of disease resulting from the two species under consideration, particularly in laboratory animals.

For several years our laboratory has been exchanging materials with Almeida and Fonseca and through their courtesy we have been able to

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Read at the Annual Meeting of the American Dermatological Association, Inc., New York, June 8, 1934.

From the Laboratory of Dermatological Research, School of Medicine, University of Pennsylvania, assisted by a grant from the Faculty Research Committee.

1. de Almeida, F.: The Blastomycoses of Brazil, Ann. Fac. de med. de São Paulo **9**:69, 1933.

2. Wernicke, R.: The Pathogenic Protozoa, J. de micrographie **15**:48, 1891.

3. Mazza, S., and Parodi, S. E.: Laryngeal Mycosis Due to Parasites Similar to the Megalosporons of Posada, Bol. Inst. de clín. quir. **3**:909, 1927; Mycosis of the Larynx Caused by a New Type of Fungus, ibid. **4**:539, 1928.

compare two strains of P. brasiliensis with C. immitis of North America. As a result we are able to confirm most of Almeida's original conclusions, namely, that P. brasiliensis is radically different from C. immitis and that therefore the North American coccidioidal granuloma has seldom been reported in South America. Conversely, it is probable that thus far P. brasiliensis has not been found in North America.

MATERIALS AND METHODS

The strains originated as follows:

North American Strains.—Strain 1 was D. R. 1108, which was from a patient with generalized coccidioidal granuloma whose case was reported by Riesman and Ahlfeldt.[4] The patient had at one time visited Flagstaff, Ariz. Strain 2 was D. R. 1978, submitted by Dr. Stuart C. Way, of San Francisco, who found it in a lesion on the foot.

South American Strains.—Strain 1 was D. R. 2388 (his no. 1162), and strain 2 was D. R. 2389 (his no. 1148), both of which came from Dr. O. da Fonseca, Rio de Janeiro, but without any clinical data.

Gross cultural studies of all four strains were made contemporaneously on the following mediums: Pennsylvania medium,[5] Sabouraud's conservation medium, prune extract agar, carrot extract agar,[6] bean extract agar, beer wort agar, Czapek's medium,[7] corn meal agar, potato and a modified Pennsylvania medium containing bromphenol blue adjusted to a p_H of 4.6. The standard potato tubes (15 by 2.5 cm.) of the bacteriologist were employed. The inoculated tubes were kept in diffuse daylight at room temperature over various periods of time up to six weeks.

Microscopic studies were conducted in hanging drops in the van Tieghem cell.[8] The following broth mediums were employed: dextrose, bean extract, carrot extract and beer-wort.

Pathogenicity was tested in mice, rats, guinea-pigs and rabbits (two animals for each strain) and in cats and dogs (one animal for each strain). Inoculations were made intraperitoneally and in the case of male rats, rabbits and guinea-pigs intratesticularly in addition. The inoculum consisted of thick suspensions in a physiologic solution of sodium chloride of six week old cultures grown on solid mediums. The animals that did not die spontaneously were killed at the end of two months.

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4. Riesman, D., and Ahlfeldt, F. E.: Coccidioidal Granuloma: Review of the Clinical Data, with Report of a Pennsylvania Case, Am. J. M. Sc. **174**:151, 1927.

5. Weidman, F. D., and Spring, D.: Comparison of Ringworm Culture Ingredients, Arch. Dermat. & Syph. **18**:829 (Dec.) 1928.

6. Redaelli, P., and Ciferri, R.: Studies on Torulopsidaceae, Zentralbl. f. Bakt. (Abt. 2) **78**:40 (May 27) 1929.

7. Henrici, A. T.: Molds, Yeasts, and Actinomycetes, New York, John Wiley & Sons, 1930, p. 29.

8. Weidman, F. D.: The Deep Mycoses in Their Surgical Aspects: Rôle of Laboratory Diagnosis, California & West. Med. **33**:465 (July) 1930.

CHARACTERS IN TEST TUBES

The characteristics that were noted in the growths in test tubes deserve consideration because the North and the South American strains contrasted in several respects at early and late stages.

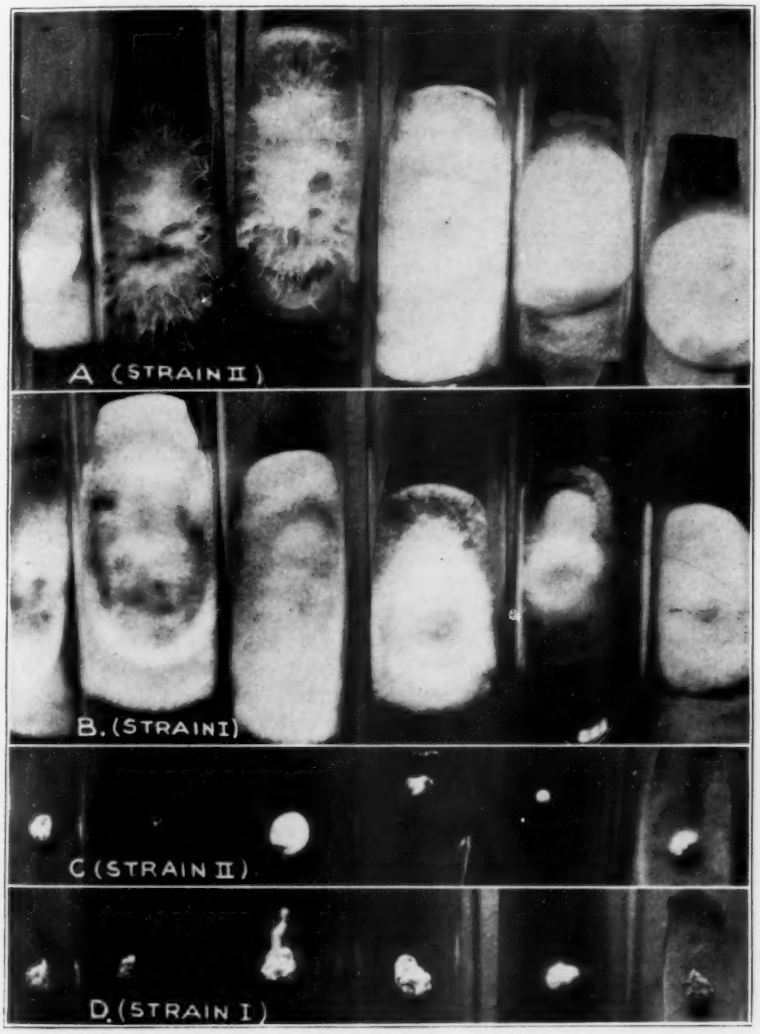

Fig. 1.—Cultures after three weeks. *A* and *B*, two strains of the North American species, Coccidioides immitis; *C* and *D*, two strains of the South American species, Paracoccidioides brasiliensis, on the following mediums (reading from left to right): Sabouraud's conservation medium, Pennsylvania, bromphenol blue, carrot extract, bean extract and potato medium.

Early Stages.—North American Strain: At an early stage (after three weeks) both North American strains reached their prime; i. e., their characteristics were

fully developed. In general the two strains were similar. Growth was luxuriant on the conservation, Pennsylvania, carrot, beer-wort, bromphenol blue and potato mediums; it was highly restricted on Czapek's medium and corn meal agar and did not occur at all on prune extract agar. The colonies were large, varying in length from 4 to 8 cm., and in width from 2 to 5 cm. They were essentially superficial, flat and loosely duveteuse and spread extensively over the surface of the medium. In addition, on most mediums there was a translucent film of mycelium extending in the depths of the medium just below the surface for a varying distance around the main colony. On conservation, carrot, bean, potato and bromphenol blue mediums the colony was covered by long, loose, snowy-white duvet. On conservation medium faint lavender pigmentation was noted in the substrate. Both strains took up the bromphenol dye slightly, their aerial mycelia taking a definite bluish tinge. On all mediums which were sufficiently translucent to permit reading, the backs of the colonies were found to vary from lighter to darker brown. On some mediums the surface of the colony was coarsely lumpy and an umbo appeared in the center.

On the whole, what differences there were between the two strains were minor. Strain 1 grew a little more luxuriantly. It produced a spectacular, highly characteristic, bristly surface on Pennsylvania and bromphenol blue mediums which was not noted in strain 2 but which we have observed from time to time in several other strains of C. immitis. It is not peculiar to this particular strain and is probably due to dissociation. On Czapek's medium strain 1 grew on the surface as a superficial film of scanty mycelium about 1.5 cm. in diameter, whereas the mycelium of strain 2 was confined to the inoculation point and extended perpendicularly upward in the form of a few strands. On bromphenol blue medium and potato a light cream-colored pigmentation was noted on the surface of strain 2 which did not appear on strain 1. We feel that the differences observed are within the limits of variation in plants which are as notoriously variable as the fungi.

South American Strains: These were radically different from the North American strains. In the first place, the growth was highly restricted on all mediums employed and did not infiltrate downward into the substrate. After three weeks the colonies varied in length from 0.2 to 1 cm. and in width from 0.2 to 0.6 cm.; i. e., they were only a fraction of the size of the colonies of the North American strains. They were sharply demarcated, compact and heaped up to a height of from 0.25 to 0.5 cm. Strain 1 acquired on most mediums a coarsely cerebriform or honeycombed surface, which was waxy during the first few weeks but was finally covered by a thin film of dirty white powder, giving it a whitewashed appearance. In strain 2 the honeycomb feature was absent and the average size of the colonies was only half that in strain 1. The surface was partially covered by white to cream-colored mycelium which was so short that it appeared to be whitewashed. On conservation medium there was a slight diffuse purplish pigmentation of the substrate. On Pennsylvania medium the colony was tan and either waxy or pasty, with little or no evidence to the naked eye of the presence of a mycelium. Bromphenol blue was absorbed slightly. There was little growth on Czapek's medium and on corn meal agar and none on prune extract agar. The medium was not deeply penetrated in any instance. The most distinctive features of the two strains in common (in relation to the North American strains) were (1) the highly restricted growth, (2) the sharp demarcation, (3) the compact, heaped-up character of the colonies, (4) the short aerial mycelium (white to cream), (5) the faint lavender pigmentation on conservation medium and (6) the honeycombed surface (exhibited only in strain 1).

Changes at Later Stages.—By the end of ten weeks the North American strains had spread so far over the surface of the medium as to cover it almost completely. There were not any other important departures from the characters just recorded for the earlier stages. The South American strains also grew farther, but attained a maximum size of only 2.5 by 1 cm., i. e., small enough to permit them to remain as symmetrical colonies unmodified by the confines of the test tube. They did not spread upward and downward as did the North American strains. On many of the mediums the surface of strain 1 eventually became cracked or fissured and coarsely nodular. The surface mycelium, when present, remained short. The color varied from white to light cream. The interior of the colonies as viewed in the fissures was dark brown to black. The colonies always remained compact, heaped-up and sharply demarcated. Strain 2, though it remained sharply demarcated, finally showed a broad, flat zone around a central umbo on some mediums.

MICROSCOPIC STUDIES

Microscopic studies were conducted both in liquid and in solid mediums. Hanging-drop preparations consisted of beer-wort, bean and carrot extract broths, as well as the standard dextrose broth of Sabouraud. The appearances were the same in all four kinds of fluid medium; hence it will be sufficient to record only the findings in the latter. The slow growth of the South American strains made it necessary to permit all four strains to grow for six weeks.

North American Strains.—At the end of six weeks strains 1 and 2 were almost identical in appearance and can be considered together. Both grew luxuriantly, spreading out over the entire undersurface of the cover slip. The microscopic structure was exceedingly simple. The mycelium was definitely septate and moderately broad (from 2 to 3 microns) and contained numerous refractile granules of different sizes. Coremium formation occurred definitely in strain 2, but in strain 1 it is questionable whether the hyphae were sufficiently fasciculated to justify that designation; apparently this is a variable character. Chlamydospores were the only conspicuous special organes. They occurred frequently along the course of the hyphae and were spherical or fusiform and from 5 to 7 microns in width and from 7 to 9 microns in length. They were as a rule intercalary but occasionally terminal. Arthrospores (sometimes in chains of 15 or 20) were also noted as oval or rectangular bodies 4 or 5 microns wide and 7 or 8 microns long. The hyphae at times showed terminal, club-shaped enlargements.

South American Strains.—The picture here contrasted at once with that of the North American strains because it was so confused. Great care had to be exercised in distinguishing between the cells of the original explant and the freshly developed cells. While both South American strains exhibited marked differences from the North American ones, they also exhibited such differences from each other that it is necessary to describe them separately.

In strain 1 the mycelium was scanty, comprising about 5 per cent of the entire colony. The rest consisted of round cells. The mycelium was irregularly contoured or curved, largely disjointed, comparatively narrow (from 1.5 to 2.5 microns) and hyaline. The walls of the hyphae were not definitely double-contoured, and the segments were indistinct, contrasting strongly with C. immitis. Mycelial cells contained numerous highly refractile granules, singularly uniform in size and uniformly spaced from each other. Round to oval rather than fusi-

form chlamydospores occurred both intercalary and terminally. In many instances they appeared to be almost identical with the smaller form of round cell to be described next. They contained similar spheroid refractile bodies.

Round Forms: The round forms (which were probably aged chlamydospores) had no special relations to the hyphae but occurred indiscriminately in a matrix of degenerate granular débris. They were of two types, differing mainly as to the size and thickness of the capsule. The first, and larger, type attained a diameter of 40 microns. Its capsule was highly distinctive. It was thick (up to 1 micron), dense and fibrillated. Usually it was uneven in thickness; in some cells thin plaques were interposed in it, and in others there were round, hyaloid lumps. In either case they projected into the interior of the cell rather than onto the exterior, so that the sphericity of the cell at large was not compromised. In the case of the coarser, lumpier thickenings, it required careful focusing to distinguish them from endospores, because of the third dimension necessarily involved in the examination.

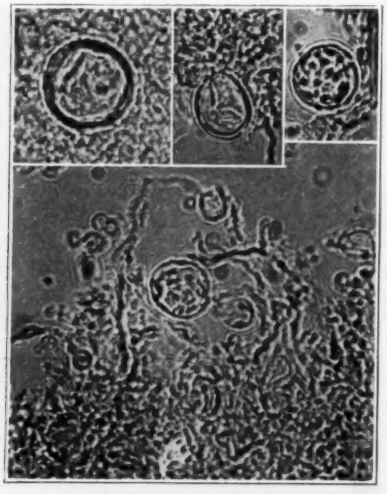

Fig. 2.—Paracoccidioides brasiliensis. Photomicrograph of a hanging-drop preparation, six weeks old, featuring chlamydospores. The cell in the upper right hand corner contains bodies suggestive of the endospores mentioned in the text.

A second peculiarity of the capsule consisted in numerous minute, uniformly sized hyaloid refractile bodies or processes which projected from the exterior and were possibly identical with Almeida's "protoplasmic buds." The center of the cell was coarsely granular; occasionally it was separated from the capsule by a clear space. Although one received the impression that the granules were endospores, they were by no means as definite as those found in true C. immitis. In a few cells coarse refractile granules, approximately 1 micron in diameter, stood out clearly. The capsules were not observed to rupture, as may be noted in C. immitis when growing in tissue. No true budding was observed, such as occurs in tissues in blastomycosis.

The other, smaller type of cell measured from 8 to 10 microns in diameter and had a thin, refractile capsule. The center was clear, except for a few refractile spheroidal bodies of varying size (1 to 1.5 microns). The latter

impressed us as being food stores or other cytoplasmic inclusions rather than reproductive structures.

Strain 2 differed definitely from strain 1. Although it was still a small compact colony, the mycelium was fairly abundant, whereas the large round cells that were found in the previous strain were present but sparingly. The mycelium was moderately broad (2 or 3 microns). Hyphae were packed with minute refractile spheroids. Septums though present were indistinct. Spheroidal swellings which occurred along the mycelium measured 5 or 6 microns in diameter. They also contained spheroidal refractile granules and appeared to be of the nature of chlamydospores.

Although it was found only rarely, the most distinctive feature was a large round cell measuring from 10 to 12 microns, usually terminal, which might be mistaken at first sight for a sporangium. The interior was so dense that the details could not be made out, but it appeared that coarse endospores might be

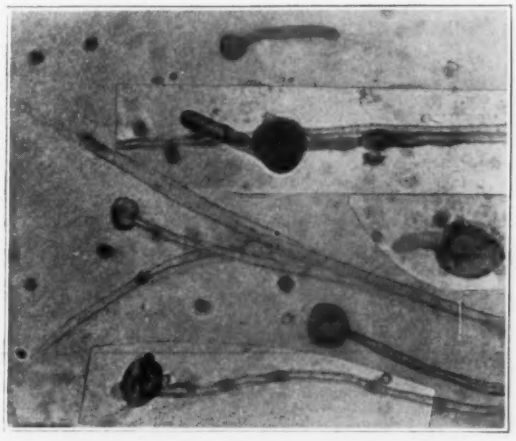

Fig. 3.—Paracoccidioides brasiliensis; hanging-drop (carrot extract) preparation, several months old. Various chlamydospores are shown, some of which show germination in the form of short hyphae. There are two minute bodies on one chlamydospore which are reminiscent of the multiple gemmae of Almeida. The latter occurred only in tissue, however, in Almeida's material.

contained therein, because certain parts were more refractile than others. However, spores could not be unequivocally identified even by special clearing and staining procedures or by crushing the material in the hope of liberating the spores from a spore case, if present.

Architecture on Solid Mediums: The architecture of the South American strains was so simple that recourse was had to the examination of materials growing on solid mediums in the hope of detecting additional forms of cells, particularly the gemmation forms of Almeida, which are found only in tissue. Fragments of colonies were scraped from the surface. Sabouraud's test medium, his conservation medium and a phenolized dextrose medium were thus used in order to vary the environment. However, little additional information was gained in this way. At most, chlamydospores and arthrospores were the only important organes to make their appearance at all consistently, as in the hanging-drop

preparations. Only in exceptional cases could a double-contoured structure be recognized, such as will be considered in the description of sectioned colonies, which follows immediately.

"Histologic" Sections of Colonies on Solid Mediums: Three month old colonies were fixed in a solution of formaldehyde. The entire contents of the tube were slipped out, and sections were cut in such a way as to display both the aerial and the submerged mycelium. On the test medium of Sabouraud both South American strains were found to consist of delicate but closely compacted hyphae interspersed with a few small chlamydospores measuring not more than two or three times the width of the parent hypha. The submerged hyphae differed from the aerial ones only in their larger size, perhaps because they had dried out to a lesser extent than the aerial hyphae.

The same descriptions apply to the colonies grown on phenolized dextrose agar, except that a few of the chlamydospores were far larger—eight or ten times the diameter of the hyphae. Furthermore, they were in large part solid, hyaloid and deep blue, suggesting that they had become calcified. Strain 1 contained greater numbers, and the chlamydospores tended to be concentrated in certain places; in rare cases they were more or less fused, suggesting the formation of a sclerotium.

The conservation medium of Sabouraud promoted a greater variety of forms, which still fell short, however, of what Almeida described in tissue. There were numerous large chlamydospores, occasionally (strain 2) studded with minute sparse granules. They could not be entirely reconciled, however, with Almeida's multiple gemmation forms.

Results.—The end-results of these tests therefore showed that under standard mycologic conditions (meaning the ordinary Sabouraud technic) the microscopic structure of P. brasiliensis is as simple as that of C. immitis; i. e., even under partial anaerobiosis in the depth of a solid medium, the special organes consisted only of arthrospores and, particularly, chlamydospores. In but one hanging-drop colony, which was three months old, did we note certain changes which might have a bearing on the moot nature of Almeida's multiple gemmation forms in tissue. As suggested by him, the latter resemble gigantic chlamydospores studded with minute, uniform-sized hyaloid excrescences suggestive of buds. In the hanging-drop colony only one or two such structures were observed at the most, but these were of significance. There was a short, rudimentary hypha extending from one of the chlamydospores, and in addition there were several gemma forms which had the same general (protoplasmic) texture and caliber as the immature hypha. While not convinced, we are inclined to believe that at least some of the double-contoured gemmation forms figured by Almeida were chlamydospores with abortive germinal tubes. Others were probably of the order of the granular excrescences observed on the exteriors of various fungus cells, including the radiate excrescences of C. immitis.[9] While we have not

9. Weidman, F. D.: Radiate Formation Due to a Hyphomycete (Aspergillus?), Arch. Path. **13**:725 (May) 1932.

studied them in tissue, we feel, from Fonseca's and Almeida's illustrations, that they are not genuinely reproductive in nature and at most might be abortive attempts at germination.

ANIMAL INOCULATIONS

Mice.—Eight mice were inoculated intraperitoneally, two with each of the four strains (two North American and two South American).

North American Strains: In three of the four animals inoculated with North American strains the disease developed; the fourth animal died the day following the inoculation. Of the three diseased animals all exhibited lesions in the lungs; in one which died at the end of eleven days the lesions were confined to the lungs, while in the two remaining animals (with a duration of the disease of three and six weeks, respectively) the lesions were also present on the surface of the

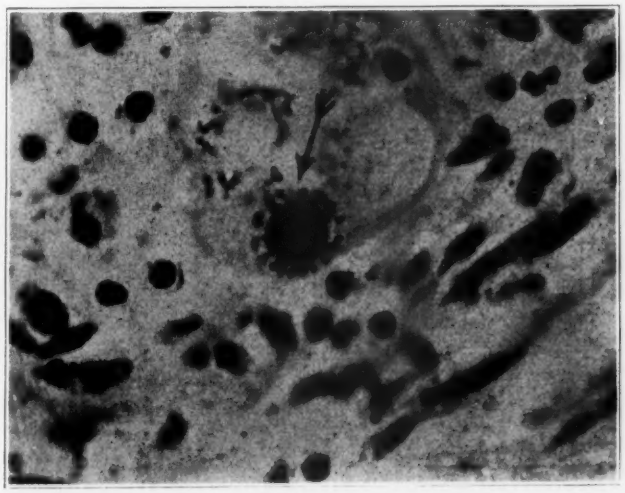

Fig. 4.—Photomicrograph published by Almeida (Ann. Fac. de med. de São Paulo **4**:98, 1929), showing a cell (in tissue) with multiple gemmae.

peritoneum and in the mesenteric lymph nodes. Parasites that were typical of the North American disease were found in all three animals on direct microscopic examination of fresh material and in histologic sections. Retrocultures were positive in all three instances. In short, both strains were highly virulent.

South American Strains: The four mice inoculated with the South American strains died in five or six weeks. They did not exhibit fungous lesions of any kind, and no fungi could be discovered microscopically.

Rats.—Eight rats were inoculated both intraperitoneally and intratesticularly, four with North American and four with South American strains.

North American Strains: Three of the four animals exhibited yellow nodules in the lungs and in the abdominal lymph nodes. Two animals exhibited similar lesions in the testes also and over the general peritoneal surface. Parasites were demonstrated in fresh material and in histologic sections. Pure cultures were secured from two of the animals; those of the third were contaminated. In short, the North American strains were again found to be highly virulent.

South American Strains: These induced varying results in the four rats that were inoculated. One animal showed no results (strain 1), while two (strain 2) showed small lesions, doubtless foreign body reactions, confined to the testes. Thus, fungus cells could not be found in them on direct microscopic examination of fresh material, and cultures gave negative results.

Only in a fourth animal, killed at the end of sixty days, was the disease definitely induced (strain 1); a pea-sized caseous enlargement of a mesenteric node was found. Sections revealed small round fungus cells in its center with excessively thick walls. The interiors stained uniformly pink (hematoxylin and eosin stain), giving the impression that they were dead. Endospores could not be identified. The cells suggested chlamydospores rather than the distinctive cells described by Almeida; occasionally extracellular, they were generally enclosed by giant cells. Yet a culture from this node showed positive results, necessitating

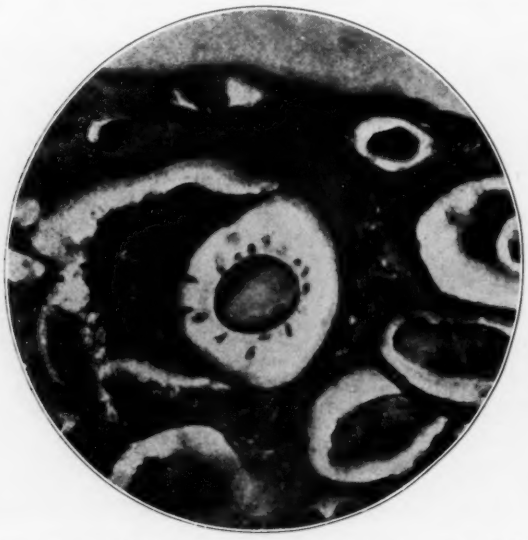

Fig. 5.—Illustration published by Fonseca (Sciencia med. **5**:682, 1927), also showing multiple gemmae.

mention at least of certain indefinitely outlined, minute, ovoid bodies richly scattered in the necrotic materials, which may represent a spore stage in the life cycle of this parasite.

The reaction of the tissue was similar in all three of the rats with lesions, whether the parasite was alive or dead; i. e., a central necrotic area was walled off by a dense zone of young fibrous tissue. In the wall there were foreign body giant cells, together with a sprinkling of lymphocytes and polymorphonuclear leukocytes. Apparently there was still sufficient toxic material in the (perhaps dead) mycelium originally injected to provoke a reaction of the tissue.

Guinea-Pigs.—In all four of the animals inoculated with the North American strains generalized lesions developed—pulmonary and peritoneal and in the mesenteric nodes. They were also present in the liver, spleen and kidneys in one animal. Parasites were found in all lesions, in fresh material, histologically and culturally. In the four animals inoculated with the South American strains no lesions developed.

Rabbits.—Three of the four animals inoculated with the North American strains showed no evidence of disease at necropsy. Nevertheless, a culture was secured from one apparently normal lymph node of an animal which died at the end of nine days; perhaps additional lesions would have developed had the animal lived longer. The fourth rabbit exhibited three or four small translucent nodules on the surface of the spleen; parasites were demonstrated in fresh material, sections and culture. This conforms to our usual experience; i. e., rabbits are not susceptible to experimental coccidioidal granuloma. Two rabbits that were inoculated with the South American strains exhibited enlarged mesenteric lymph nodes, but parasites were not demonstrable in them histologically or culturally. No lesions were found in the other two.

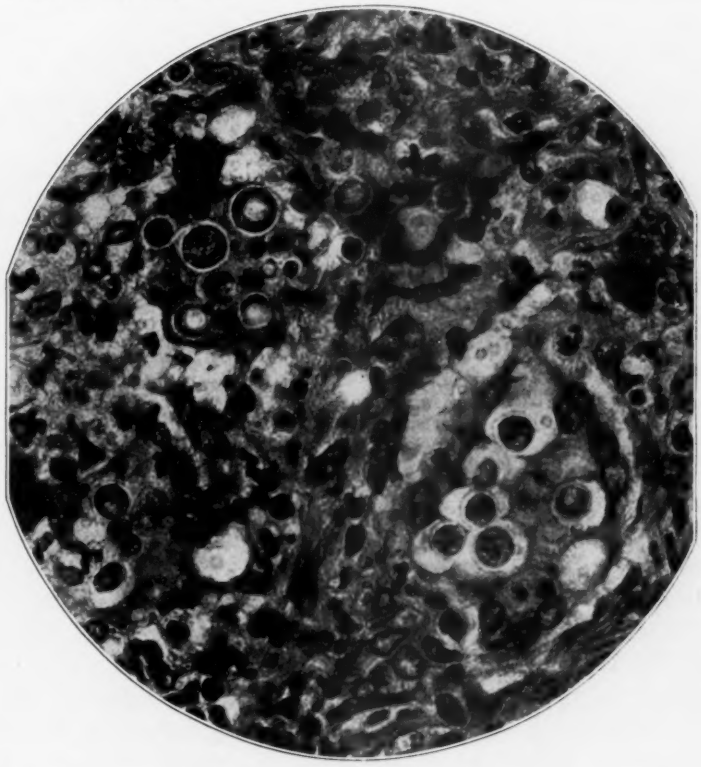

Fig. 6.—Photomicrograph of experimental paracoccidioidal granuloma in a mesenteric node of a guinea-pig. The culture was presented by Dr. da Fonseca in 1930 and was not used in the series employed in the work herewith reported. Multiple gemmation was not observed in our guinea-pig tissue, such as was shown (figs. 4 and 5) in human tissue by Almeida and Fonseca.

Cats.—Four cats were inoculated, one with each strain. Both North American strains induced lesions. One cat, which died in fifteen days with diaphragmatic hernia, exhibited only a few scattered pulmonary lesions (strain 2). The other cat, killed after eight weeks, exhibited a generalized infection involving the lungs, thoracic lymph nodes, peritoneum, mesenteric lymph nodes and diaphragm. There were both pleural and peritoneal effusions. The parasites were demonstrated in

histologic section and in culture. The South American strains did not induce lesions of any kind (the animals were killed three and eight weeks, respectively, after inoculation).

Dogs.—Four dogs were used. Unfortunately, the two that were inoculated with the North American strains died at the end of one and two days, respectively, and were not subjected to necropsy. No lesions were found in the two inoculated with the South American strains.

Summary of Findings in Animals.—The North American strains were definitely virulent for all the animal species tested, particularly mice and rats (the animals of choice for testing pathogenicity of fungi), but also guinea-pigs. Indeed, the lesions in this group were more or less generalized. Cats ranked next, with rabbits far in the background.

Disregarding the mouse which died prematurely, only three of the entire group of seventeen animals failed to exhibit lesions of some kind. In the animals in which lesions were found the lungs were invariably affected, except in two rabbits; and eleven of the seventeen animals had lesions in the mesenteric lymph nodes in addition. The peritoneum frequently contained nodules (in nine animals). The liver, spleen and kidney were involved but once (guinea-pig). In short, the North American strains of C. immitis were consistently and highly virulent for mice, rats, guinea-pigs and cats. Rabbits, on the other hand, appeared to have a high degree of immunity; active lesions were found in but one rabbit, which had only a few small nodules on the surface of the spleen.

As to the organisms themselves, typical examples were readily and invariably demonstrated on direct microscopic examination of fresh material and in histologic sections. The organism was obtained in retroculture in twelve of the fifteen animals in which lesions developed. This was a most convincing demonstration of the virulence of the North American strains. On the other hand, the South American strains were almost avirulent for all the animal species employed in this study. Lesions were not produced in mice, guinea-pigs, rabbits, cats or dogs, but only in rats; and even the rats were indifferently affected. Thus, in two rats the lesions were confined to the testes, and attempts to grow the micro-organism in culture were unsuccessful. Indeed, only one animal, a third rat, had a lesion which could be regarded as indicative of true infection. Retroculture was secured from this—the only successful attempt in all the animals employed.

RELATIONSHIP BETWEEN THE SOUTH AMERICAN AND THE NORTH AMERICAN DISEASE

With Almeida we feel that the radical differences heretofore described are quite sufficient to separate the North American from the South American disease, regardless as to how the fungus species may ultimately be classified botanically. Such a wide divergence in the virulence

of the diseases produced in animals, together with the differences in luxuriance of growth and method of reproduction of the two fungi, is entirely adequate to separate them.

Unquestionably the technical botanic aspects, particularly taxonomy, merit additional attention. Certainly to the medical reader, the differing features of the two micro-organisms as they have been described must appeal sufficiently to justify the separation of the fungi into separate genera. The differences are sharp and hold good consistently for all major phases—gross culture, hanging-drop culture and virulence.

Comparison of Coccidioides Immitis and Paracoccidioides Brasiliensis

Organism	Gross Culture	Hanging-Drop (Dextrose Broth) Preparation	Round Forms (Ascus?)*	Pathogenicity for Animals
Coccidioides immitis	Large, spreading colonies; long mycelium, white to cream colored; much loose aerial mycelium, i.e., a downy type of colony; colonies develop quickly, maximum at three weeks	Mycelium spreading to periphery of hanging drop; fusiform chlamydospores and arthrospores; clubbing of terminal hyphae	Occur only in tissue; diameter of from 2 to 60 microns; endospores definite; escape by rupture of parent cell	Pathogenicity high and widely distributed over animal species; infection generalized
Paracoccidioides brasiliensis	Small, compact and sharply demarcated colonies; short, powdery mycelium, white to cream-colored; surface usually honeycombed; growth slow; maximum at seven or eight weeks	Mycelium confined to region of explant; chlamydospores numerous	No endospores in tissue, observed only sparingly in culture; diameter of from 2 to 40 microns; endospores indistinct; reproduction by passage through cell membrane (?); ruptured cells not noted	Pathogenicity low; lesions few and localized; confined to rats

* These are the double-contoured structures of controversial nature which are regarded by some as asci.

The position of the botanist, however, is different. From his standpoint, as long as the complete life cycles of the parasites, especially the sexual forms, remain unknown, it cannot be said that the two forms should be finally and unequivocally separated. He frequently meets similarly extreme differences in the morphology of fungus forms which force him to separate them temporarily into different genera only to discover later that they are but different phases in the life cycle of a single phylogenetic species. Some fungi, indeed, have life cycles which vary according to the environment, even as much as that of the malarial parasites. As a result, the botanist has had frequent recourse to the term "form genera" to cover this incomplete and temporary situation as he meets it in the fungi imperfecti. With such factors, then, as saltation, mutation and heterothallism, which are common among the fungi imperfecti

(Weidman [10]), it is not justifiable at this time to declare that the fungus species of the North and South American coccidioidal granuloma are entirely separate either generically or specifically—that is, in the strictest biologic sense. Only painstaking and arduous researches into the genetics of the two forms can throw conclusive light on this question. It is only for current medical purposes, then, that we state that the two maladies should be regarded as definitely different, both from the aspect of the disease and from the aspect of the micro-organisms.

Passing from the technical mycologic considerations and conceding that the differences between the two entities are wide enough to justify their separation in the field of medicine, it becomes necessary next to reexamine the premises as to the priority of coccidioidal granuloma over paracoccidioidal granuloma, i. e., essentially, the authenticity of the original "coccidioidal granuloma."

Fortunately, this is simple. There can be no question that coccidioidal granuloma was originally described from South America (Wernicke) and that it was caused by C. immitis. After that it was discovered in North America by Rixford and Gilchrist,[11] with C. immitis also certainly its cause. Then followed a period of years during which the subject was neglected in South America but was actively pursued, ironical as it may seem, in North America, with the report of numerous additional authentic cases. The new influx of reports from South America into medical literature which began in 1908 with the communications of Lutz and Splendore [12] marked the entry on the scene of cases which Almeida showed were due not to C. immitis but to P. brasiliensis. The designation of such cases as instances of coccidioidal granuloma was obviously based on incomplete studies of the micro-organisms; it would appear that the presence of a double-contoured, nonbudding cell was taken to be sufficient basis for regarding it as C. immitis irrespective of other and finer structural features.

The following synopsis indicates the stepping stones to the present knowledge of coccidioidal granuloma:

A. 1890, original description, incriminating C. immitis, by Wernicke in Argentine; micro-organisms regarded as a protozoon (Coccidium).

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10. Weidman, F. D.: Light from the Botanic Field on Medical Mycologic Problems, Arch. Dermat. & Syph. **19**:867 (June) 1929.

11. Rixford, E., and Gilchrist, T. C.: Two Cases of Protozoal (Coccidioidal) Infection of the Skin and Other Organs, Johns Hopkins Hosp. Rep. **1**:209, 1896.

12. Lutz, A.: A Pseudococcidioidal Mycosis Localized to the Cheek Observed in Brazil, Brasil-med. **22**:121, 1908. Splendore, A.: Mycosis Localized to the Buccal Mucosa Observed in Brazil; Fungus Apparently Referred to the Tribe Exoasci (Zymonema brasiliensis n. sp.), volume in honor of Angelo Celli, 1912; Zymenematosis Localized in the Buccal Cavity Observed in Brazil, Bull. Soc. path. exot. **5**:313 (May 8) 1912; cited by de Almeida,[1] p. 95; American Blastomycosis, Brasil-med., 1914; cited by de Almeida,[1] p. 95.

B. 1896, original North American case described by Rixford and Gilchrist; micro-organism cultured and formally named Coccidioides immitis.

C. 1908, first case of the South American disease reported by Lutz [12] from Brazil; micro-organism named Zymonema brasiliensis.

D. 1908-1915, rapid succession of reports of cases of the South American disease, all from Brazil.

E. 1927, second (and last) report of a South American case of C. immitis infection, again Argentinian, reported by Mazza and Parodi; organism misnamed Pseudococcidioides.

F. 1929, beginning of Almeida's analytic studies separating the North American from the South American disease.

Now that C. immitis and P. brasiliensis are sharply defined as separate and distinct species, and the authenticity of coccidioidal granuloma has been established, it is in order to question whether, in turn, the disease produced by P. brasiliensis should be classified any longer as coccidioidal granuloma. The answer to this question depends largely on the degree of difference between the two micro-organisms. For example, if instead of Paracoccidioides the South American type had been caused by an organism congeneric with C. immitis, it would still be permissible to include it with and denominate it as coccidioidal granuloma. Actually, however, such is not the case, and we are in sympathy with Almeida in placing P. brasiliensis in an entirely different genus than Coccidioides. If we add to this the other findings in our studies, such as the wide differences in the clinical course of the disease in man [1] and that in animals, we feel compelled to conclude that the diseases should not be denominated under a common heading such as coccidioidal granuloma, which connotes C. immitis as the causative agent. Indeed, in some respects, notably in experimental animals, they are more widely separated than coccidioidal granuloma and Gilchrist's disease. To state the case more strongly, the paracoccidioidal and the coccidioidal granuloma have but one important feature in common, namely, a certain similarity between their micro-organisms in tissue; it is true that they are of similar size and have a double capsule, but there the resemblance stops.

A similarity of this degree, we feel, is not adequate reason for grouping the two as a single disease entity. To illustrate by an extreme example, it is understandable that a number of fungi, such as Aspergillus (which produces chlamydospores in culture), may be discovered at a future date which exhibit double-contoured forms in tissue, but certainly a trait of this sort should not be accepted as a reason for classifying them with the causative organism of coccidioidal granuloma. In the final analysis the entire botanic complex of characters of a species (not simply its morphology in tissue) should be enlisted in set-

tling the identity of a disease in view of the known capacity of the reaction of the tissue (environment) to modify the morphology of fungi.

This being the case, and with the South American disease so sharply set off from coccidioidal granuloma, we recommend that Almeida's designation "paracoccidioidal granuloma" be accorded general acceptance. At the same time we propose as a synonym "Almeida's disease." [13] This is particularly fitting in view of this author's continued labor on the subject and his recent original and monographic treatment of the entire situation. Furthermore, the term "Almeida's disease" will be useful as a supplementary check against confusion of coccidioidal and paracoccidioidal granuloma, just as Gilchrist's disease distinguishes American from European blastomycosis.

SUMMARY

C. immitis is firmly established as the cause of most, if not all, cases of North American coccidioidal granuloma as at present recorded. It also caused two cases in South America (Argentine). A radically different fungus, P. brasiliensis, is the cause of numerous cases in Brazil of a disease which heretofore also has been regarded as coccidioidal granuloma.

We secured two strains of the latter fungus and compared them with two North American strains of C. immitis. They proved to be radically different in culture tubes and under the microscope and as to pathogenicity for laboratory animals. Only in tissue was there any resemblance between the two parasites, yet even there certain differences could be established. We believe that P. brasiliensis constitutes a new species. In view of the widely differing character of the diseases produced by the two species, it is doubtful whether the disease produced by P. brasiliensis should be included in the category of coccidioidal granuloma. It is recommended that the name "Almeida's disease" be applied to those maladies caused by P. brasiliensis.

Previously reported knowledge of North American cases of coccidioidal granuloma should be reexamined in the full light of Almeida's disease. Paracoccidioidal granuloma is a third fungous disease which

13. In doing this we are quite aware that both Almeida [1] and Fonseca (da Fonseca, O.: Revision of South American Blastomycosis, Bol. Inst. de clín. quir. **4**:469, 1928) dealt with coccidioidal granuloma under the heading of blastomycosis! In such a sense Almeida's disease would also be a blastomycosis, but we do not subscribe to such a policy, since the causative agents are so specifically established. In speaking this way we fully appreciate that the basis for establishing disease entities is far less secure than that for etiologic entities, but in the case of coccidioidal granuloma, blastomycosis and Almeida's disease the differences are so clearcut that it is a loose example, indeed, of even medical classification to group them.

must be added to blastomycosis and coccidioidal granuloma when the problem arises of differentially diagnosing blastomycosis from coccidioidal granuloma either clinically or histologically.

ABSTRACT OF DISCUSSION

DR. LLOYD W. KETRON, Baltimore: I should like to hear Dr. Weidman discuss the clinical differentiation of these two diseases.

DR. FRED D. WEIDMAN, Philadelphia: As far as the individual cutaneous lesions are concerned there are practically no differences. Both are granulomas, with or without ulceration, but one important feature of the Brazilian disease is that the primary portal of entry seems to be around the mouth. Furthermore, there is marked adenopathy, so severe as to simulate Hodgkin's disease (as shown by the lantern slides); and there is not the tendency for osseous involvement. At autopsy it is common to find involvement of the intestines, which is rare in the Californian disease. Of all these, the important clinical differences are that the disease begins around the mouth in the South American disease and there is marked adenopathy.

HISTOLOGIC EVIDENCE OF EPITHELIOMA OF THE SKIN

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Textbooks on dermatology and cutaneous pathology and special articles treat of individual types of epithelioma, but consideration of the disease as a pathologic entity is to be found only in books on general pathology, and the subject is discussed in such a manner as to be of little help in the study of dermatopathology.

This communication is an attempt to present my concepts of the data collected on microscopic examination of material or evidence necessary for the recognition of the so-called precancerosis or early malignant development and of early and well established epithelioma of the skin.

The evidences of an epithelial malignant growth should be considered according to the various stages of development: (1) the so-called precancerosis or preepithelioma; (2) the early malignant neoplasm, and (3) the fully established malignant neoplasm.

A variable but high proportion of some pathologic conditions, such as inflammatory processes which persist for a long time and result from external, internal or unknown causes in apparently normal tissue or in tissue already pathologic, either in their course or as a sequela, present changes characteristic of a malignant process or of an early stage of a neoplasm.

The diseases in themselves possess no essential elements or indications of malignant changes; they are merely observed to precede the epithelial involvement. These conditions have been designated as precancerous. As the term implies, or should imply, precancerosis is the stage before the development of a neoplasm, i. e., the stage of change from an inflammatory to a malignant process.

This clinical concept is based on the later evolution of the clinically benign process to a later malignant neoplasm. The dermatopathologist can have no such concept. The results of microscopic examination are either positive or negative. Probabilities and possibilities should be left to the clinician. The pathologist must deal with demonstrable histologic evidence.

From the Dermatologic Department of the New York Post-Graduate Medical School, Columbia University, George M. Mackee, director.

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, W. Va., May 2, 1935.

Often a so-called precancerosis is a process in the stage of malignant development within the epidermis proper, sometimes long before the stage of proliferation (tumor formation). This stage may remain passive for a variable time, and then other changes, proliferation as well as anaplasia, result in a subsequent malignant neoplasm.

Ewing stated that "among the most significant features accompanying or preceding a malignant process is its power of exciting a reaction in the surrounding cutis." According to this, an acanthosis which is present for a variable time and is accompanied by an inflammatory process (the inflammatory protective zone) should be regarded as a beginning malignant process, even before there is anaplasia or atypical changes or proliferation of the cells. The development of a malignant process may be microscopically manifested even when there are no clinical evidences of change. Such acanthosis may remain unnoticed for a variable time and a neoplasm may or may not develop. The change may be slow, and it may take years for the development of the neoplasm.

The same precancerosis may precede different types of cellular growths, depending on the part of the epidermis which undergoes proliferation and the type and degree of differentiation (malignant dyskeratosis or anaplasia) of the cells. Again, different types of precancerosis may precede similar types of malignant neoplasm. There are no clinical indications as to the cell type of the possible future neoplasm.

Among the most common dermatoses considered clinically as precancerous which present evidence indicating malignant changes are those (1) without cellular proliferation, such as Paget's disease, (2) with an inflammatory protective zone (acanthoses), such as leukokeratoses, (3) with atypical proliferation of epithelial cells, such as seborrheic, senile, radiodermatitic, and, sometimes, arsenical keratoses, and (4) with proliferation and anaplasia of varying type and degree, such as Bowen's precancerous dermatosis.

In a consideration of the evidence of malignancy it is best to study the subject in two parts—the changed epidermis as an entity and the changes in the cellular elements of the changed epidermis.

THE CHANGED EPIDERMIS AS AN ENTITY

The changed epidermis as an entity is characterized by an irregularity or abnormal or atypical character of the epidermis and the resulting altered relation between this epidermis and its supporting cutis. The term atypical applies not so much to the number of cells or arrangement as to the change in the relationship between the epidermis and the underlying cutis, as well as to the changes that occur in the cells.

There may be an absolute hyperplasia with definite changes in the component cellular elements. It is this change from physiologic to

anaplastic cells that indicates the beginning of the malignant process, even before there is any proliferation, or sufficient proliferation to constitute a neoplasm.

Though there may be a hypoplasia, the epidermis may be relatively hypertrophic, owing to an increase in the size of the individual cells plus secondary changes passing up from the cutis below. In these instances the cellular changes (anaplasia) and not the proliferation of cells are the predominate feature, indicating a malignant process and not a new growth. This distinction is well demonstrated in Paget's disease.

Epithelial proliferation, when present, is an important finding. It is characterized by hypertrophy of the epidermis, enlargement mostly due to a quantitative increase in the number of epithelial cells produced by direct or indirect cell division, i. e., an excessive proliferation of adult cells. This differs from the nonmalignant type in that the initial process consists of a collection of epithelial cells which multiply at an excessive rate and apparently without control. The hyperplasia may be of varying intensity and may involve either the basal cell zone or the prickle cell zone or both, sometimes with involvement of one predominating.

The proliferation may tend to extend above the level of the surrounding epidermis or below the limits of the surrounding epidermis. It is margined on the cutis side by an inflammatory process, the so-called inflammatory protective zone. At first there is a tendency for it to develop more rapidly in a horizontal than in a perpendicular plane, relatively superficial for a varying time.

Proliferation of adult prickle cells forms an acanthosis; proliferation of adult basal cells, a basal cell epithelioma; proliferation of anaplastic prickle cells, a prickle cell epithelioma; proliferation of anaplastic basal cells, an embryonic cell epithelioma, without the characteristics of either basal or prickle cells.

The development of the neoplasm may be intra-epidermal or extra-epidermal. The infiltration of the epithelium into the supporting cutis may be en masse or diffuse and disseminated.

Intra-epidermal development of the malignant process may occur in apparently unaltered, hypoplastic or hyperplastic epidermis. Notwithstanding the extent of the epidermal changes, such as proliferation, the infiltration of the cutis or the shape or other general characteristics of the involved or invading epithelial tissue appearing en masse or in islands, groups or strands of cells, when margined everywhere by cells characteristic of the basal columnar layer, the malignant process from a broad point of view is to be considered intra-epidermal.

The proliferation and other changes are taking place within the confines of the epidermis, pushing the basal cell layer forward. This is of great clinical value. When malignant changes take place in a process previously present (acanthosis) and before there is any proliferation of anaplastic cells, the process is intra-epidermal and often represents the

clinical precancerous or pretumorous stage, though it may later develop into a neoplasm.

In the case of extra-epidermal development the proliferated cellular masses are no longer margined by a basal cell layer, either in toto or in part. The proliferating cells then extend into the surrounding cutis. As soon as the proliferation passes the bounds of the epidermis, the cells grow in an uncontrolled manner, follow the paths of least resistance, at times en masse, at times scattered or disseminated in all directions, and at first displacing and later replacing the tissue of the invaded areas. The extent and character of the dissemination is due in part to the activity of the proliferation of cells and to the character of the changes induced in the cutis, i. e., in the inflammatory protective zone.

There are times when proliferation of atypical cells begins at the basal cell zone from a previously acanthotic epidermis in which there was no anaplasia at any time. These cells are at no time margined by a basal cell layer. They are extra-epidermal from the start. They often do not have the characteristics of either basal or prickle cells but are similar to the cells noted in nevocarcinoma. They constitute the so-called anaplastic carcinoma described by general pathologists.

When the process is intra-epidermal, it always presents itself en masse but usually it spreads out in the cutis. When isolated cellular masses of varying size and shape and margined by basal cells are present in various parts of the cutis and proliferation continues at those parts, the process soon becomes extra-epidermal.

One may have to study serial sections to reconstruct and to visualize the oneness of the infiltrating mass with the outlying cells. At times there is no apparent or traceable connection, even in serial sections. This is often due to the snaring off of these cells by the surrounding inflammatory process or by the pressure of granulation or fibrous tissue.

Isolated areas with no provable connection with an overlying acanthosis when composed of adult cells and margined by a basal cell layer are of no importance; they occur commonly in many nonmalignant conditions. When the overlying epidermis presents malignant changes, then outlying zones are to be regarded as part of the process or as possible local metastases.

Many neoplasms present both types of development, more commonly starting as intra-epidermal and later becoming extra-epidermal. This combination is often present in the same section, indicating a change in the manner of growth and in the degree of malignancy.

As for clinical evidence, an intra-epidermal process with little or no proliferation may be noted in the so-called precancerous stage. An intra-epidermal process is regarded as a local malignant condition, and the grading is low in intensity. One rarely finds involvement of the draining lymph nodes at this stage.

A process which is primarily intra-epidermal and secondarily extra-epidermal may attain a large size and be present for some time before the change takes place; therefore involvement of the lymph node comes late and only after the change has occurred. The closer to the epidermis, i. e., the superficial in the horizontal plane, the less the tendency to involvement of the lymph nodes. With diffuse or disseminated types of infiltration, especially in the deep portion of the cutis in the perpendicular plane, involvement of the lymph nodes is a common occurrence. When extra-epidermal without previously being intra-epidermal, the neoplasm is usually highly malignant from the start, and early involvement of the lymph nodes occurs.

The reaction of the cutis, as an inflammatory protective zone, preceding or accompanying the change from a benign to a malignant process is a reaction in the surrounding cutis. This reaction may be present for a long time before malignant changes in an acanthosis or acanthoma are in evidence.

It may be a moderate or a prominent symptom, varying in component characteristics and of significant value.

The inflammatory protective zone may be either exudative or productive. It may be composed of round or plasma cells, or both, with or without granulation tissue and with a soft, mucinous or fibrous, cellular or acellular stroma; any one of these may predominate.

An exudative inflammatory process in which round cells predominate indicates either a recent or a rapidly growing neoplasm, usually of a high degree of malignancy; when plasma cells predominate, it indicates either a long continued or a slowly developing process of lessened malignancy. Development of fibrous tissue acts as a restraint, at times localizing the process, and hence indicates lessened malignancy. With much local fibrosis the invasion of the cells is largely through the lymph channels formed by the new tissue. Infiltration of the proliferation into the inflammatory protective zone, into the lymph spaces between the bundles of connective tissue and along the lymphatics and vessels is characteristic of a higher degree of malignancy.

Hence one notes that the character of the inflammatory protective zone is a valuable guide as to the degree of malignancy, supporting the other evidences which indicate the degree of malignancy.

The possible origin of the neoplastic or malignant process is also of considerable importance as to nomenclature and type. Nevoid tissue originates from anomalies of development. It may be present at birth, or it may develop later in life. It is composed of pavement epithelium and is either of embryonic or of adult character. Nevoid tissue composed of adult cells may be found in normal or abnormal locations, as in various types of nevi. Nevoid tissue composed of embryonic cells (the congenital anaplastic type) is usually noted in or at the basal zone

and reaches down into the cutis to varying depths. It is the forerunner of the so-called melanoma. The origin of inflammatory tissue lies in a progressively active process, developed from elements of the adult type as part of the evolution or involution of acanthotic or verrucous lesions or as sequelae of scars or atrophic tissue.

There may be a mixture of nevoid and inflammatory tissue in the same specimen.

The cells originate from the adult type of pavement epithelium or from the embryonic type of epithelium. Those derived from the adult type of epithelium may be: (1) from the basal cell zone, retaining the characteristics of basal cells in basal cell epithelioma; (2) from the suprabasal zone, presenting characteristics of both basal and prickle cells (either may predominate, as in the so-called intermediary or mixed types of epithelioma), or (3) from the prickle cell zone, basically retaining the spinous characteristics, as noted in prickle cell epithelioma, or the cells from the embryonic type of epithelioma may be present in any part of the epidermis, either as congenital or acquired or as adult cells becoming anaplastic (reversion to the embryonic type) at any time. This reversion may be complete without previous proliferation, as noted in Paget's disease, or in all stages from partial to total in previously proliferated epithelium, as noted in Bowen's disease and in many malignant epitheliomas.

Those epithelial cells in normal or pathologic epidermis which have developed keratohyalin or have reached the stage of keratinization, i. e., from the granular layer outward in normal epidermis and keratinized cells anywhere in pathologic tissue, no longer have the power of proliferation; hence these cells are no longer malignant. Basal and prickle cells can and do proliferate. Basal cells may become keratinized, as noted in many inflammatory processes and neoplasms. Prickle cells do become keratinized, forming a horny covering when on the surface, and are either thrown off or heaped up to become a hyperkeratosis. When developed in a neoplasm proper they form a part of the process of accelerated dyskeratosis.

Therefore a squamous cell neoplasm should not be classified among the basic types of cancer, as the squamous cell represents a dyskeratosis developed during evolution or involution and is not the type of cell from which the neoplasm originates.

As for the cancer cell, at the present time there is no definite knowledge or concept of the conversion from physiologic to pathologic cells or of the underlying differences of the cells which proliferate and retain their adult characteristics and those which become anaplastic.

In one microscopic field of a neoplasm it is not uncommon to note all degrees and types of these changes side by side. To me it is not possible to designate this or that cell as a or the cancer cell. It is the

abnormal behavior in abnormal location in abnormal involvement, i. e. the process as a whole and its intensity, that indicates these cells as part of a malignant process rather than a new type of cells with new biologic properties.

CHANGES IN THE CELLULAR ELEMENTS OF THE PATHOLOGIC EPITHELIAL TISSUE

Anaplasia is a change in the life cycle or evolution of the cells which tends to the development of cells of changed behavior or altered physiology and results in a change in the morphologic characteristics of the cells.

A physiologic change resulting in cells of atypical qualities, i. e. new behavior, may involve a partial or a complete cessation or acceleration in evolution resulting in a slowing up to total loss of, or a speeding up to a premature, differentiation or specialization of cells. This change may be grouped under the heading of dyskeratosis.

The formation of keratin is a specific and ultimate function of mature or maturing epithelial cells; dyskeratosis is a disturbance in the evolution of the cells with special reference to formation of keratin and is evidenced by abnormally constituted epithelial elements. According to the type and degree of the dyskeratosis, the affected cells are readily differentiated from the surrounding still normal as well as from parakeratotic cells.

The dyskeratosis may represent an accelerated evolution with premature keratinization or a retarded evolution with no tendency toward keratinization. It may be a primary or a secondary process; it may occur early or late; changes in the cutis may precede or accompany the various types of dyskeratosis.

According to the type and relation to the surrounding pathologic changes, dyskeratosis is often an important finding both of diagnostic and of prognostic value.

The changes may develop in isolated cells or in groups of cells, in sections or layers or in the entire epidermis.

Accelerated and Retarded Processes of Keratinization.—An accelerated process of keratinization, or benign dyskeratosis, or differentiated cells, results in cells of premature senility or of dry cornified types; the cells do not go through the process of normal evolution, namely, the formation of granular development and keratohyalin and the disappearance of these granules and of the nucleus, resulting in a physiologic flattening of the horny cells; without these usual intermediary steps, the cells shrink, become smaller, lose their prickles and are usually rounded when isolated or of any shape when in groups. The cell body may become granular or homogeneous; the nucleus may be displaced,

distorted or entirely obliterated. The cell from the beginning has an increased affinity for acid dyes. It eventually loses all its characteristics and becomes a keratinized mass.

A retarded process of keratinization, or malignant dyskeratosis, or undifferentiated cells, results in a delayed maturity, which tends to a reversion to the embryonic cell type. The cells become larger and contain more hyaloplasm with a disturbance of the spongioplasm; they may lose their affinity for dye or take no stain at all. The nucleus may be and usually is increased in size; both regular and irregular mitotic figures may be present, resulting at times in multinucleated cells of various sizes and shapes. These cells rarely change to the accelerated types. Both in morphology and in behavior they are similar to embryonic cells.

Occurring as a primary feature, the accelerated type, or benign dyskeratosis, manifests itself when the entire epidermis or a portion of it is affected, accompanied with inflammation or degeneration of the cutis, as in Darier's disease, or with no changes in the cutis, as in molluscum contagiosum and various nevi and in some of the so-called precanceroses.

The retarded type, or malignant dyskeratosis, as a primary development may affect the entire epidermis or a portion of it, accompanied by inflammatory changes in the cutis as in Paget's disease, with little or no change in the cutis as a rule, as in some nevi. It may affect portions of the epidermis, widespread or limited, usually of the basal zone, with or without pigment formation, without any other changes in the cutis or epidermis, as in those nevi which are the forerunners of the so-called melanoma; or it may affect an already thickened epidermis due to proliferation of either basal or prickle cells or both in varying proportions, with both types of dyskeratosis present also in varying proportions, the retarded type usually predominating, with a varying degree of inflammatory process and at times degenerative changes in the underlying cutis, as noted in Bowen's dermatoses.

Occurring as a secondary feature, the accelerated type presents itself occasionally in basal cell epitheliomas, widespread, as in some of the precanceroses and prickle cell epitheliomas; in groups, as in prurigo, or isolated, as in lichen planus and lupus erythematosus.

The retarded type is occasionally noted as a secondary development in the basal portion of acanthoma; it is of varying origin and is a definite evidence of malignant development, as noted in arsenical and radiodermatitic keratoses.

Changes in Morphology (Cells of New Characteristics).—There is a change in the size and shape of the cells. The cell bodies become cloudy, at times containing granules and at times losing staining

characteristics. The cells may become many times larger than the surrounding cells. The nuclei may remain as those of the surrounding cells or may become considerably enlarged. The chromatin network may become completely deranged.

In the early stage the cells, especially the nucleus, may stain more intensely and later on, less intensely; at times they may take on the characteristics of the retarded types of dyskeratosis, similar to those noted in Paget's and Bowen's diseases and in nevocarcinoma.

The nuclei may be hypochromatic, but usually they are hyperchromatic with distinct nucleoli (the so-called one-eyed cells), indicating increased nutrition, with increased power of proliferation and hence increased malignancy. This may be the only change present in an early stage of malignant development, before the stage of proliferation.

Mitoses, both typical and atypical, and degeneration of the cell body and of the nuclei may be present.

Broder's Method of Grading the Degree of Malignancy of Epithelioma.—The process of differentiation indicates an attempt at self-control, the so-called application of the brakes in a process which is already developed; this is what I refer to in the various stages of benign dyskeratosis.

The undifferentiated cells (the malignant dyskeratosis) include all those with mitotic figures and the regular and irregular, multinucleated ones with deeply stained nucleoli.

According to Broder's indication of differentiation there are: in basal cell epithelioma, proliferation of cells similar to that of normal basal cells; in prickle cell epithelioma, the development of keratin in circumscribed masses (pearls) and evolution into cells which do not contain keratin but which have developed beyond the ability to reproduce, the so-called squamous cells, noted in the so-called squamous epithelioma; in nevocarcinoma or embryonal carcinoma, production of pigment (melanin) the product of mature basal cells (I find that the presence or absence of pigment does not indicate the degree of malignancy in these processes).

The Broder index for grading the degree of malignancy of well established malignant neoplasms is as follows:

Grade	Cells, Differentiated Percentage	Cells, Undifferentiated Percentage
1	100-75	0- 25
2	75-50	25- 50
3	50-25	50- 75
4	25- 0	75-100

As for clinical values; grade 1 epithelioma shows very little tendency to metastasis, making it unnecessary to remove drainage lymph nodes.

In about one third of the cases of epithelioma of grades 2 and 3, even with metastases, removal of draining lymph nodes offers cure. In cases of epithelioma of grade 4 affecting the lips, mouth and antrum, it is useless to remove draining lymph nodes and usually fatal.

SUMMARY

I have attempted to demonstrate the following points: Some of the so-called precanceroses present evidences of a malignant process before the tumorous stage. Some are hyperplasias developing within the confines of the epidermis, i. e. intra-epidermal with evidence of malignant changes before the proliferation of anaplastic cells. The early stage of the majority of epitheliomas is intra-epidermal in development. Either the proliferation or the dyskeratosis may predominate. When proliferation predominates, the malignancy is less intense. In the stage of intra-epidermal development, involvement of the draining lymph nodes does not occur. The character of the inflammatory protective zone is an important aid in estimating the degree of malignancy. The part of the neoplasm with accelerated dyskeratosis is no longer malignant. The retarded type of dyskeratosis is the most malignant. Broder's classification refers to well established types of neoplasm and is not of sufficient value in the evaluation of the malignant process before the development of the tumor and in the early neoplastic stage.

Microscopic observations indicate that the malignant development in hypoplastic or hyperplastic epidermis before proliferation of anaplastic cells is the earliest stage of evidence of malignancy and corresponds to the clinical precancerous stage; that the intra-epidermal development is relatively benign as compared to the extra-epidermal types and the type and degree of the cells and the type of dyskeratosis are not so important at this stage; that the mature type of cell has a tendency to become stationary or to lose its power of proliferation, and that the closer the cell comes to the embryonic type the greater the incidence of malignancy.

To establish the degree of malignancy, the section should be studied for the following points and all the evidence used to arrive at a conclusion, with the fact borne in mind that estimation of the degree of malignancy on the basis of the type and degree of dyskeratosis alone is not sufficient. With all the data furnished to the clinician, he is better able to be guided in the therapy.

A guide for study of microscopic sections is as follows: (1) relation of the epithelial proliferation (*a*) to the epidermis (developing above or below the surrounding epidermis; developing within or beyond the basal cell layer); (*b*) to the cutis infiltrating into the superficial or deep cutis; infiltrating en masse or disseminated or diffuse.

2. Origin in regard to the type of time (nevoid or inflammatory) and of cells (physiologic, or adult; pathologic, or anaplastic).

3. Anaplasia, involving change in (*a*) physiology, cell differentiation or dyskeratosis (type, extent, relation) or (*b*) morphology (size, shape, staining characteristics and nuclear changes).

4. Broder's classification.

5. Associated changes in the cutis: (*a*) active inflammatory protective zone (character, cytology, vascular changes); (*b*) sequelae of changes in the cutis degeneration, fibrosis, etc.).

For diagnosis, one should note the cell type, with its character of development and manner of infiltration; the dyskeratosis, with its extent and type, and the character of the inflammatory protective zone.

ABSTRACT OF DISCUSSION

Dr. George Miller MacKee, New York: There are two conditions mentioned by Dr. Satenstein that should be included in the neoplastic rather than in the precancerous group, namely, Paget's disease and Bowen's disease. It is understandable why one who is particularly interested in histopathology refuses to accept the clinical and statistical concept of precancerosis. Unless the pathologist can see some evidence of a beginning malignant condition under the microscope he refuses to consider the lesion as malignant or even premalignant. An objection to the clinical concept is that it indicates a necessary sequence which by no means always occurs. There are members of the group in cases of which the incidence of development of true malignancy is only 2 or 3 per cent, but I prefer the clinicostatistical concept for two reasons. I think cutaneous conditions should be included in a recognized group even if they result in cancer only occasionally. Scar tissue, for instance, by no stretch of the imagination can be considered as histologically precancerous, but as 10 per cent of large scars eventuate in carcinoma it is placed with precancerosis.

Another difficulty is in recognizing the point at which cancer begins. There are, of course, certain characteristics, such as abnormal proliferation, anaplasia, dyskeratosis and inflammation, which may suggest a beginning malignant neoplasm. However, these are seen in benign conditions. Several years ago Weidman studied a large amount of tissue removed from chronic ulcers. He encountered all these features in clinically benign tissue. In many such instances it is necessary from the standpoint of histopathology to make a diagnosis of carcinoma in spite of the fact that the condition remains benign.

Dr. J. Frank Fraser, New York: I agree with what Dr. MacKee has said. I feel that the term "precancerous" is a poor term, for it means that the lesion must at some time develop into cancer. In some of the so-called precancerous lesions, as in Bowen's disease and Paget's disease, for example, it is not possible to diagnose either one in any stage before it is definitely cancer. A reasonable hypothesis is that radiodermatitis, leukoplakia and similar lesions develop into cancer because they are a source of chronic irritation. In these conditions there is no histologic change from which the development of cancer can be predicted, before the condition can be diagnosed positively as cancer. In other words, the only basis for the theory of precancerous lesions is clinical.

Dr. William Allen Pusey, Chicago: I was grateful to Dr. Satenstein for indicating that he thought there was room for the name "precancerous" in referring

to some of these lesions. I take exception to the statement that this term means that the lesions must necessarily be followed by cancer. Such an appellation means no more than that they are frequently followed by cancer. A premedical student, for example, does not necessarily become a doctor. All that the prefix "pre" denotes is a common association with some succeeding thing. It is a good and useful word, and its use is proper and justified.

Dr. Karl G. Zwick, Cincinnati: At times I am disturbed by the observation that an essayist condemns the term "precancerous" in his opening remarks and later, in some subtle fashion, returns to the use of the objectionable term. (As we did not have an opportunity to learn Dr. Satenstein's views on this point, my remarks do not apply to his discerning presentation.)

As the term "precancerous" is unscientific, because its use implies that one has a quasiprophetic knowledge of the ultimate development of a lesion, I prefer a term which does not commit me to a definite prognosis. For that reason I am in the habit of referring to certain lesions as being "premonitory" of a cancerous development. If the patient is inclined to neglect or entirely overlook a dubious lesion, I speak, somewhat more urgently, of a "conditional," "contingent," "potential" or "possible" formation of cancer.

The use of the terms suggested does not commit me to a definite prognosis at a period when a definite diagnostic decision is not strictly compatible with the clinical findings or the histologic facts.

Speaking of histologic facts, I cannot omit to mention my impression that it does not seem safe to me to grade a tumor, with reference to its prognosis, on the basis of the relative number of differentiated and undifferentiated cells.

According to my experience, the malignancy of a tumor ought to be judged by its most malignant part and not by its average structure. In other words, at the risk of being condemned as heretical, or at least heterodox, I shall not at present subscribe to Broder's dogma of classification.

Dr. Marion B. Sulzberger, New York: I think it is agreed that the use of the term "precancerous" should be preserved, that it is a word of great practical usefulness and that the term should be applied to conditions which have certain possibilities of becoming cancer. I think I should even go further than Dr. Pusey etymologically. I should say that a lesion to be called "precancerous" must be without any definite signs of actual existent cancer.

Dr. Charles M. Williams, New York: I was called on some time ago to prepare a course of precancerous dermatoses, and I wrote to Dr. Peyton Rous to ask whether the term precancerous was correct. He arose to the bait and said, "Certainly. If not, what in the world would we call these tar dermatoses and other things from which cancer develop?" There seem to be several conditions which must combine if cancer is to develop: a hereditary predisposition, an irritation, whether chemical or physical, and an unknown essential. What this last may be is a question the answer to which still rests on the lap of the gods.

Dr. D. L. Satenstein, New York: I may repeat that clinically there is a precancerous condition, but histologically I mean a preneoplasm and the clinician means a premalignant change. Histologically Paget's disease has not reached the stage of tumor formation, but when it does it becomes cancer.

In Dr. MacKee's discussion he spoke of anaplasia. In the part of the paper which I could read in the allotted time, there are mentioned the two types, either of which may predominate in many different conditions. Sometimes it is impossible without following a case and taking different specimens to tell whether the growth is benign or malignant.

AVIAN ITCH MITES AS A CAUSE OF HUMAN DERMATOSES

CANARY BIRDS' MITES RESPONSIBLE FOR TWO GROUPS OF CASES IN NEW YORK

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Ordinary human scabies is caused by an arthropod (insect) of the order Acarina, a member of the family Sarcoptidae known as Sarcoptes (or Acarus) scabiei de Geer (var. hominis). As is well known, this burrowing mite is an obligatory human parasite which is specifically adapted to one host—man. In human beings the mite burrows into and within the horny layer, reaches the less cornified epidermal cells, and there derives the nutrient substances which enable it to live and to propagate. The mating and the entire life cycle of the insect take place on the human host. The result of this parasitism is the disease called scabies.

The severity both of the objective manifestations and of the itching varies greatly from person to person. This variation must be due in a great measure to the fact that the degree of reaction is dependent to some extent on variations in the host's susceptibility to the activity and products of the attacking mites.

There are numerous subvarieties of Sarcoptes scabiei which are specifically adapted, not to man, but each to another species of animal. In spite of their close relationship entomologically, these varieties are all apparently to a great degree host-specific. Examples of such mites are those infesting cattle (Sarcoptes bovis), horses (Sarcoptes equi Gerlach), sheep (Sarcoptes ovis Megnin), swine (Sarcoptes suis Gerlach), goats (Sarcoptes caprei Fuerstenberg) and, among the house pets, cats (Sarcoptes minor var. cati Gerlach or, better, Notoedres cati Hering, 1838) and dogs (Sarcoptes major var. canis Gerlach and occasionally Notoedres cati). Apes and monkeys in captivity can be infested by a mite identical with or very similar to the human mite, Sarcoptes major (Weidman [1] and others).

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, W. Va., May 3, 1935.

1. Weidman, F.: Certain Dermatoses of Monkeys and an Ape, Arch. Dermat. & Syph. **7**:289 (March) 1923.

The reasons for the host-specificity of each of these acari are unknown. In the case of the burrowing mites (Sarcoptes), it is said that the salivary secretion of each species is capable of dissolving the horny layer only of its specific host. Thus, mites arriving on a strange species of host may live for some time and, if previously impregnated, may even bring forth young on the stranger, but they are unable to penetrate and dig burrows and are thus unable to reach the deeper layers from which they must derive sustenance. In other words, the mites parasitic on one species are doomed to perish in one generation when transferred to another species; and, unless reinfestation from an outside source takes place, the strange host is soon liberated from such parasites. Whether or not there is specificity of the salivary secretion as supposed, it has been sufficiently well proved by clinical observation and by deliberate experimental transference that the parasitic mites of one species of animal cannot, as a rule, survive and propagate on another species.[2] (For possible exceptions, see Weidman.[1]) This host-specificity applies not only to the burrowing mites, the Sarcoptes, but also to many other insect parasites, among which are the important group of blood-sucking mites known as Gamasidae.

In spite of this strict limitation to a single species, many obligatory animal parasites, such as the animal Sarcoptidae and the Gamasidae, can and do produce skin eruptions in human beings. And if the sources of fresh infestation are not removed, these human skin manifestations may continue for an unlimited time. Apparently, the animal mites wandering over and seeking to settle and to feed on the unsuited human host produce itching and dermatoses of varying severity in susceptible persons. We have stated that even under the intimate relationship of the human itch mite to its host the manifestations produced are often of varying degrees of severity, and that these variations are dependent to some degree on variations in the susceptibility of the host. All physicians acquainted with scabies have seen endemics in one and the same human family, produced by one and the same family of mites, in which the lesions ranged from the mildest manifestations in one member of the family to the most severe in another. And we have seen instances in which a person has demonstrated what could be regarded only as complete immunity (for example, a wife free from manifestations even after months in the same bed with a husband who has scabies).

As would be expected in consideration of the generally less intimate contact with the offending agents and substances, these variations of

2. Heller, Julius: Die Klinik der wichtigsten Tierdermatosen, in Jadassohn, Josef: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1930, vol. 14, pt. 1, p. 831. Pick, Walther: Tierische Parasiten der Haut, ibid., 1929, vol. 9, pt. 1, p. 466.

human susceptibility are more likely to become apparent in epidemics and endemics of human skin eruptions produced by the parasites of animals. In fact, it may be said that under normal conditions certain of these mites, such as the Gamasidae, can produce skin disease only in particularly susceptible persons or only when the contact becomes particularly intimate, prolonged, and with sufficient numbers of parasites.

An important recent contribution to the study of human disease produced and transmitted by a species of Gamasidae has been made by Shelmire and Dove.[3] These authors showed that mites of the rat (Liponyssus Bacoti Hirst) which are present on infested rats in Texas, Mississippi and other states not only can produce itching human dermatoses but may even be one of the vectors of endemic typhus if they have been parasitic on typhus-infected rodents.

The subfamilies of the Gamasidae are numerous. They include mainly mites parasitic on birds, but also the already mentioned Liponyssus of rats and mice and certain parasitic mites of rabbits, snakes, bats and other animals.

Since the seventeenth century, reports of itching human dermatoses caused by the mites of animals have been appearing in dermatologic literature. Among the human dermatoses due to scabies in animals may be mentioned those diseases to which Toomey[4] gave names as follows: chorioptosis, from the horse (fetlock); psoroptosis, from cattle; cnemidocoptosis, from fowl (scaly leg); sarcoptosis, from the horse, hog, goat, sheep, cattle, camel, lion, tiger, wolf, monkey, fox, ferret and dog, and notoedrosis, from the cat. These conditions are all caused by burrowing mites and are therefore properly called scabies. The eruptions due to nonburrowing mites, that is, those due to biting and blood-sucking mites such as the Trombididae and Gamasidae, should not be classed as strictly scabetic. However, medical literature has, in the past, so frequently referred to diseases due to Gamasidae as scabies that in this paper we shall continue to apply that term to these conditions. In 1922 Toomey[4] published an article on the subject of scabies of animal origin, with an excellent and complete bibliography of previous observations. In 1931 the Royal Society of Medicine held a symposium on scabies and ringworm of animal origin at a joint meeting of the sections of comparative medicine and of dermatology.[5]

3. Shelmire, B., and Dove, W. E.: The Tropical Rat Mite, Liponyssus Bacoti Hirst, 1914: Cause of Skin Eruption of Man, and Possible Vector of Endemic Typhus Fever, J. A. M. A. **96**:579 (Feb. 21) 1931. Dove, W. E., and Shelmire, B.: Tropical Rat Mites, Liponyssus Bacoti Hirst, Vectors of Endemic Typhus, J. A. M. A. **97**:1506 (Nov. 21) 1931.

4. Toomey, T. N.: Scabies of Animal Origin, Urol. & Cutan. Rev. **26**:473 (Aug.) 1922.

5. Whitfield, A., and others: Discussion on Scabies and Ringworm as Transmissible Between Animals and Man, Brit. J. Dermat. **43**:438, 1931.

The mites of the cat and the dog seem to be fairly common causes of dermatitis in man and have, therefore, received particular attention from medical authors. In 1872 Wedelius (cited by Toomey [4]) reported an epidemic of scabies in cats which lasted for two years. Toomey stated that Hertwig [6] in 1834 was the first to describe human dermatoses due to the mites of cats. Thibierge [7] in 1911 and again in 1922 published comprehensive discussions of scabies in cats and of its clinical manifestations in man. Among the later reports of scabies transferred from cats to man, we need mention only that of MacCormac.[8]

Human dermatoses due to mites from birds have been reported but certainly with less frequency than those due to mites from other animals. Toomey [9] wrote an excellent article on this subject also. It includes the eruptions due to the blood-sucking mites not only of birds but also of other animals, and is entitled "Gamasoidosis." The reader is referred to this article for the older bibliography.

Toomey stated that it was Redi who first recognized the bird mite in 1674. Human dermatoses attributed to mites from birds were first described by Willan (1809), Alt (1824) and Alibert (1825). The first proved cases in man were those reported by Bory de Saint Vincent in 1828, Kirby and Spence in the same year and Erdl in 1842; and an epidemic of human eruptions due to avian mites occurring among pigeon-fanciers in Petite Montrouge was described by Raspail in 1843.

Since that date, many other authors have contributed case reports of dermatosis due to mites from birds, and many textbooks allude to this condition. Von Hebra and Kaposi [10] described human scabies due to avian mites (1880), and Brocq [11] and Darier and Jadassohn [12] mentioned its existence. Certain modern American textbooks—for instance, those of Stelwagon and Gaskill,[13] Sutton,[14] Pusey [15] and Crocker [16]—

6. Hertwig: Mag. f. Tierh. **48**:325, 1834.

7. Thibierge, G.: Sur l'éruption provoquée chez l'homme par la gale du chat, Gaz. d. Hôp. **84**:163 (Jan. 31) 1911; La transmission à l'homme de la gale sarcoptique du chat, Rec. de méd. vét. **98**:632, 1922.

8. MacCormac, Henry: Cat Scabies, Brit. J. Dermat. **46**:411 (Oct.) 1934.

9. Toomey, T. N.: Gamasoidosis, Fowl-Mite Dermatitis, Urol. & Cutan. Rev. **25**:705 (Dec.) 1921.

10. von Hebra, F., and Kaposi, M.: Diseases of the Skin, ed. 5, London, The New Sydenham Society, 1880, p. 273.

11. Brocq, Louis: Précis atlas de pratique dermatologique, Paris, Gaston Doin & Cie, 1921, p. 252.

12. Darier, J., and Jadassohn, J.: Grundriss der Dermatologie, translated by Karl Zwick, Berlin, Julius Springer, 1913, p. 371.

13. Stelwagon, H. W., and Gaskill, H. K.: A Treatise on Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1921, p. 1246.

14. Sutton, R. L.: Diseases of the Skin, ed. 7, St. Louis, C. V. Mosby Company, 1928, p. 1219.

(Footnotes continued on next page)

do not neglect to allude to avian mites as possible causes of eruptions in man. Recently, Schrafl [17] of Zürich reported several cases from Bloch's clinic.

The names which have been given to human skin disease caused by mites from birds are, among others, the following: gamasoidosis (Toomey), pigeon lice disease, chicken tick rash, bird mite disease, fowl dermatitis, pigeon-fancier's eczema, psora dermanyssica; in German, *Vogelmilbe Hautentzündung, Taubenkrätze,* and, in French, *prurigo dermanyssique* and *gale d'oiseau.*

As far as we have been able to discover, no recent reports of human eruptions due to avian mites have appeared in the American or English literature.

We are of the opinion that such mites are, at least in cities, certainly infrequent causes of human skin complaints. But it seems not improbable that more cases must occur in suburban and country districts, particularly among persons who are exposed to frequent contact with birds, either wild or domesticated.

Our own observations within less than one year of two groups of cases in New York City seem to justify the assumption that, even in cities, avian mites may cause pruritic human eruptions more frequently than has heretofore been suspected.

Our opinion that human dermatoses due to birds' mites may be more likely to occur in country districts is based on the following: Our cases were attributable to the ordinary chicken-mite (red mite—Dermanyssus gallinae) which is a very widespread and common parasite of barnyard fowl; according to Ewing,[18] this dermanyssus has "followed its host wherever the latter has been taken by man"; and two other varieties of fowl-mites, Liponyssus bursa Berlese and Liponyssus silviarum Canestrini and Fanzago, the tropical and the northern fowl-mite, respectively, are or have been common pests of poultry in the United States. Furthermore, Bishopp and Wood [19] have made the statement that the common chicken-mite "does not readily draw attention to its presence, and often the poultryman is not aware of an infestation until he is attracted to it by the irritation produced by mites on his own body, through coming in contact with the infested coops."

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15. Pusey, W. A.: Diseases of the Skin, ed. 4, New York, D. Appleton & Company, 1924, p. 855.

16. Crocker, H. R.: Diseases of the Skin, Philadelphia, P. Blakiston's Son & Co., 1905, vol. 2, p. 1369.

17. Schrafl, Anton: Taubenkrätze, Schweiz. med. Wchnschr. **38**:900, 1930.

18. Ewing, Henry E.: A Manual of External Parasites, London, Baillière, Tindall & Cox, 1929, pp. 16 and 51.

19. Bishopp, F. C., and Wood, H. P.: Mites and Lice of Poultry, U. S. Dept. Agric. Farmers' Bull. 801, 1917, p. 1.

It is also well known that wild fowl and, among others, especially sparrows (field warblers) are frequently infested with Dermanyssus and Liponyssus.

It may be worthy of mention that one of us (S.) has seen, in the city of Zurich, three cases of itching eruptions in human beings produced by Dermanyssus avium emanating from wild pigeons which had nested on the houses of the affected persons. (These cases were those reported by Schrafl.[17])

REPORT OF CASES

The cases coming under our observation in New York City occurred in two families. These families were unacquainted and lived about a mile from one another.

Group 1: Family of William B.—On Feb. 23, 1934, William B., 38 years of age, American-born, a jeweler, consulted one of us (K.) because of a severe itching eruption of seven years' duration. While itching of some degree had been continuous, there were marked exacerbations during the winter.

The patient presented a widespread dermatosis consisting of very numerous linear superficial scratch-marks with occasional deeper bloody excoriations and occasional pinhead-sized reddish papules. Interspersed with these lesions were isolated and evanescent urticarial wheals. The parts most markedly affected were the thighs, legs, lower region of the abdomen and waistline. The upper part of the chest and arms and the back and anterior axillary folds were affected to a lesser degree. There were no burrows to be seen, and the interdigital spaces and the penis were free from lesions. The face was unaffected.

All routine examinations—including blood counts, a determination of the blood sugar, urinalyses, a determination of the basal metabolic rate, a study of x-ray pictures of the gastro-intestinal tract, etc.—elicited normal findings. No cause for the itching could be discovered, but since the pruritus persisted, with only temporary relief from local medication, roentgen treatment was resorted to. The x-rays apparently aggravated the condition so that the patient refused continuation of this form of therapy. Skin tests (patch and scratch) with various suspected substances were performed, with negative results. Drainage of the gallbladder, injections of calcium, administration of insulin, strontium bromide, calcium chloride urea, sodium thiosulfate, ergotamine tartrate and cannabis indica, and many other forms of systemic and topical therapy were tried without success.

The family of William B. consisted of himself, his wife, a daughter of 5 and a son of 3½ years of age. Later questioning elicited that, while the husband was the only one with severe and generalized pruritus, the wife also complained of itching of approximately seven years' duration. The wife's pruritus was less severe than that of the husband and was localized on the breasts, anterior axillary folds, umbilicus and nates. The daughter was also troubled with occasional itching of milder degree, particularly on the soles and thighs, and of about one year's duration. The son was not affected. In all of the affected persons the itching was much more severe at night.

On April 2 the husband and wife were seen in consultation by Drs. Wise and Sulzberger. The husband presented the lesions described. The wife showed a dermatosis consisting of small papules with scratched and crusted tops, some in roughly linear and grouped formations closely resembling the lesions of scabies.

These were localized, in the main, on the nipples and breasts, the lower part of the abdomen, the anterior axillary folds and the buttocks. Both husband and wife evidenced marked dermographism, less severe in the woman than in the man. There were no typical burrows in either patient, and no itch mites could be demonstrated.

In view of the appearance and course of the eruption and its familial occurrence, the diagnosis of scabies of animal origin was entertained. Questioning then elicited the following supportive evidence: The patients had had a pet canary bird in their apartment; this bird had been acquired at about the time of the beginning of their pruritus; the bird had been scratching and biting itself increasingly during the years and had eventually died approximately three months prior to the consultation; after the bird's death, the empty bird-cage was kept in the cellar in which the husband worked, and the bird had been buried in the backyard by the children; these children had repeatedly exhumed the corpse and brought it back into the house.

The itching of the family, far from being relieved following the death of the bird, had increased in severity.

The cage was obtained, and we succeeded in demonstrating great numbers of mites, both living and dead, in the crevices of the cage and of the wooden perches. Some of the mites were filled with blood. A photograph of these mites was sent to Dr. Henry Ellsworth Ewing for identification.[20] Dr. Ewing stated that the mite "from the cage of the canary must be either Dermanyssus gallinae or Lyponyssus silviarum, both of which occur in canaries." Liponyssus remains on the host during its entire life cycle, while Dermanyssus gallinae leaves the host after its nightly feeding and breeds and nests in the crevices of the fowl's roosts and perches; it is therefore evident that the mite we found nesting in the cage and perches must be Dermanyssus.

After the finding of the avian mites, the patients were treated with antiscabetic remedies (sulfur and Peru balsam); the residence was fumigated, including the clothing, bedding, etc., and a professional exterminator went over the entire premises; the bird-cage and its mites were destroyed. After these measures, the itching of the three affected members of the family subsided and in about five weeks disappeared completely.

There have been no recurrences to date (over one year).

Group 2: Family of Spi.—On Oct. 12, 1934, Mrs. Spi, an Italian-born housewife, 40 years old, consulted one of us (K.) because of a severely pruritic dermatosis of approximately three months' duration. The itching was said to be much worse at night.

On first examination, the patient presented a widespread and severe dermatosis with many linear scratch-marks and bloody crusts on the upper part of the chest, breasts, upper part of the arms, gluteal regions and axillary folds. Between the scratch-marks were urticarial lesions and some diffuse erythema. The lower extremities were free, as were the face and interdigital webs.

There were no burrows to be seen, and no mites could be demonstrated.

The husband could not be prevailed on to present himself for examination, "as he did not believe in doctors." However, the wife stated that the husband was suffering from a dermatosis similar to her own but of greater severity.

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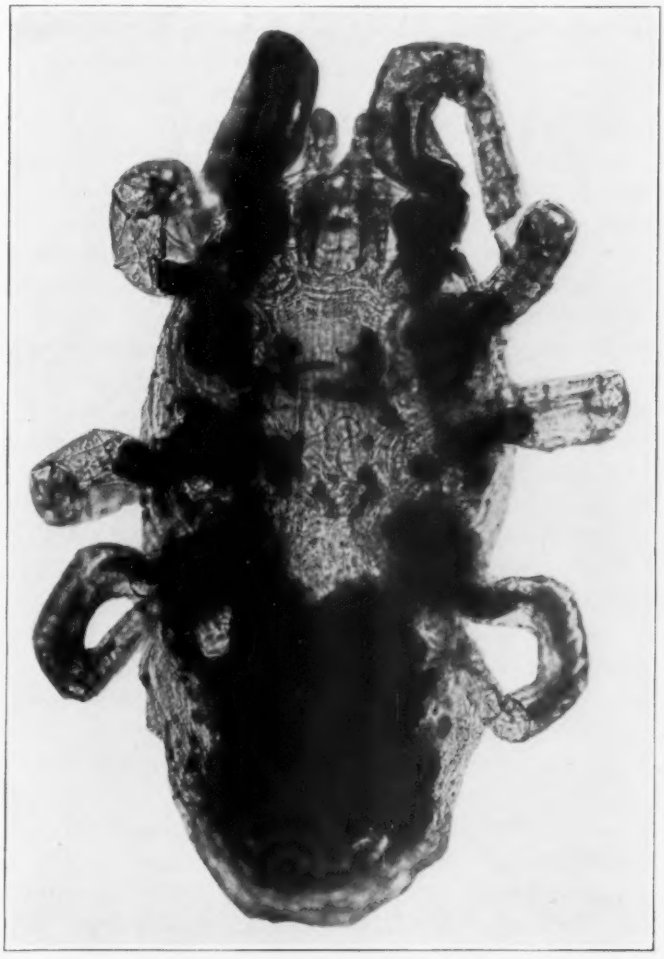
20. Eloise B. Cram of the United States Bureau of Animal Industry, Dr. J. M. Hendrickson of the New York State Veterinary College of Cornell University, and Dr. H. E. Ewing, entomologist of the U. S. Bureau of Entomology, gave assistance in this study.

Questioning elicited that the husband's eruption considerably antedated that of the wife. It was further brought to light that the couple had acquired a canary about one year previously, and that the bird was picking and scratching itself to the point of bleeding. The patient had noticed that a sheet put over the bird-cage at night was covered with "red spots" in the morning.

Many antipruritic remedies had been tried by the patient without avail.



Avian itch mite.

Mrs. Spi brought the bird and cage at her next visit. The bird was severely affected, showing loss of feathers and one wing covered with bloody crusts. Mites were demonstrated on the bird and in the cage. These parasites were identical in morphology with those responsible in our first cases, but were all engorged with blood. The mites were so numerous that they could be found with great ease. They could be seen crawling over the feathers of the bird and were demonstrable in great numbers in the crevices of the perches.

After demonstration of the mites, the bird and the cage were sent to a bird-dealer for destruction of the parasites. This was accomplished, and about six weeks later the bird could be returned to its owners free from mites and in excellent condition.

Meanwhile, the patient was given mild antiscabetic remedies, and as soon as the husband witnessed the improvement in his wife, he also began to employ these medicaments. The itching in both husband and wife began to improve immediately on removal of the bird, and both pruritus and dermatosis had entirely disappeared within a few weeks. There have been no recurrences to date (over seven months).

EXPERIMENTS

We attempted to ascertain whether persons affected by the mites of birds could be proved to have skin hypersensitivity to the products of these mites. This would explain the very apparent variation in susceptibility of different persons coming in contact with infested birds. Dr. J. M. Hendrickson furnished us with a liberal supply of mites typical of Dermanyssus gallinae. These proved, on microscopic examination, to be morphologically identical with the mites demonstrated in our canaries. An extract of these mites, which Dr. A. F. Coca of the Lederle Laboratories prepared for us, was used for skin-testing on Mrs. Spi and on two patients with ordinary human scabies. Scratch, intradermal and patch tests were performed. There was no immediate wheal, no late reaction of the forty-eight hour tuberculin type and no eczematous response to the patch test. It must be concluded that there was no evidence of hypersensitivity demonstrable by means of such experiments.[21]

COMMENT

In consideration of our own findings and of the reports in the literature, it may be accepted that the mites of birds can cause itching dermatoses in human beings. The sources of these mites are not only barnyard and wild fowl but also pet birds which may be kept in cages in city dwellings. The eruptions which these parasites of birds produce in human beings are urticarial, erythematous and papulovesicular, often showing minute succulent papules each with a pinpoint-sized central vesicle and resembling some of the lesions seen in ordinary scabies or lesions due to the bites of certain other insects. These dermatoses are, in many ways, reminiscent of scabies, and often show a certain predisposition to affect the favorite sites of scabies, such as the breasts, the umbilicus and the anterior axillary folds. Other areas

21. We have seen two other groups of cases in which the clinical appearance of the eruption, the presence of a canary and the cure after removal of the bird seem to justify the presumptive diagnosis of avian scabies. However, since we were unable to obtain either the birds or the cages and were therefore unable to demonstrate the mites, the diagnoses cannot be considered as absolutely established in these groups.

which are favored by avian scabies are the buttocks, the waistline and the area over the sacrum (pressure points). Just as in ordinary adult scabies, the face is uniformly free from lesions, in our cases at least.[22] Contrary to the usual findings in real scabies, the dermatoses from birds' mites often spare the interdigital webs and the genitalia, and it is particularly noteworthy that no burrows can be found and, as an almost universal rule, no mites can be demonstrated on the human host.[23]

On the one hand, avian scabies of human beings bears further great resemblance to ordinary scabies in that the eruptions may be extremely pruritic, in that the itching is greatly intensified at night, in the likelihood of familial occurrence and in the clinical appearance of the minute and often grouped or linear scratched papules.

On the other hand, human eruptions from birds' mites (and those from the mites of other animals in general) possess certain characteristics not usually found in ordinary scabetic itch. One is the previously mentioned different localization; another is the constant and almost pathognomonic presence of marked dermographism; a third is the frequent occurrence of urticarial lesions. There are certain other more or less constant differences from ordinary scabies, among which may be mentioned the general absence of impetiginization, the marked individual variations in the severity of the eruptions, and the large number of exposed persons remaining entirely immune.

Even more important than these differences are those which are the direct consequence of the fact that the avian parasite cannot continue to live and reproduce on the human host. Thus, the removal or cleansing of the infested birds and cages (and of the other places harboring mites) leads to spontaneous recovery in the human being, while the most vigorous and prolonged antiscabetic treatment of all the human sufferers cannot achieve a cure or prevent recurrences as long as there is contact with the infested birds and objects.

THERAPY

In carrying out the therapy, the first objective must, of course, be to destroy or remove all the avian parasites. This is more difficult in some instances than will at first appear. In one of our cases we found living mites over three months after the death of the bird. Bishopp [19]

22. As is well known, in infants ordinary scabies can attack the face and scalp.

23. There may be some exceptions to this rule. It has been reported in the older literature (Alt, 1824, and Erdl, 1842, cited by Toomey, and Gaulke, 1863, and others) that persistent papules resembling molluscum, and even follicular keratotic plugs such as are seen in pityriasis rubra, may occur in dermatoses due to Gamasidae. These lesions, according to the older authors, harbor numerous mites, which can be demonstrated when the lesions are opened. We have never seen such a case.

reported that "in a poultry house once infested, at least 4 months and probably 5 will be required before all the mites will starve if the chickens are removed from the house." He was able to demonstrate mites still alive after a period of one hundred and thirteen days.

One of us has seen mites living and crawling about in the cracks and crevices and issuing forth from window-sills, floor-boards, moldings, etc. It is therefore advisable when trying to rid a severely infested residence to adopt the same methods which are recommended for treating infested chicken houses. Equal parts of kerosene and anthracene oil should be spread by means of a spray. It should be applied from all angles, and all cracks and crevices should be well filled. The dusting of sublimed sulfur is useful also.

The birds themselves should be treated by a dip and wash consisting of sublimed sulfur, 2 oz., and soap, 1 oz., in water, 1 gallon.[24]

To expedite the spontaneous healing, it suffices to treat the human patients with topical antipruritic remedies. We have found it advantageous to add small amounts of sulfur, perhaps because they serve to keep the mites away.

SUMMARY AND CONCLUSIONS

Itch mites affect not only human beings but animals. Many of the mites of animals are similar to the parasites of man in habits and appearance. However, the mites are practically all species-specific, that is, they are restricted to life on one species and cannot continue to live and breed on animals of a different category. In spite of this fact, itch mites can cause pathologic manifestations in animals of species other than that of the natural host.

The common bird-mite (Dermanyssus gallinae of de Geer-Dermanyssus avium of Dugés) is a blood-sucking gamaside which occurs widespread on wild and domestic fowls. In spite of the fact that this mite is an obligatory parasite of birds and cannot continue to live and to propagate on man, it nevertheless occasionally causes itching eruptions in those susceptible human beings who, in various ways, come into more or less intimate contact with the mite from the bird. The skin eruptions are sometimes urticarial and sometimes papular, and sometimes, but by no means always, closely simulate scabies in both subjective and objective manifestations, such as localization, severe nocturnal itching, etc. However, there are certain constant differences from human scabies: True burrows are never to be seen, the interdigital webs and the genitalia are generally spared, and the mite cannot be demonstrated in the human skin. Dermographism is an almost constant finding. To confirm the diagnosis, the parasite must be recovered

24. Buckley, J. S.; Bunyea, H., and Cram, E. B.: Diseases and Parasites of Poultry, U. S. Dept. Agric., Farmers' Bull. 1652, 1933, p. 61.

from the bird or from the bird-cages, nests, perches, etc. There seems to be a great variation in the susceptibility of different human beings to dermatoses from contact with these mites. However, our experiments with skin tests did not demonstrate the presence of skin hypersensitivity to an extract of these mites.

Five cases (three in one family, two in another) are reported in which the dermatosis was caused by the mites of pet canary birds. The diagnosis, prophylaxis and therapy of these cases are discussed.

Mites are found as parasites of barnyard fowl and wild fowl in all parts of the United States. These mites also infest pet birds, for example, canaries. They, as well as mites from cats, dogs, horses, etc., must therefore receive consideration as possible etiologic agents in certain cases of pruritic dermatoses of obscure etiology.

ABSTRACT OF DISCUSSION

Dr. Charles M. Williams, New York: I wish to call attention to the similarity between the history of this condition and that of a case of infestation with cat's fleas. I have run across a case in which a cat was more or less infested with fleas but the family did not suffer. They left the house and took the cat with them but did not take the fleas' eggs. Two and a half months later when the house was opened they found the rugs and furniture full of hungry fleas. The removal of the source did not remove the infestation.

Dr. Fred D. Weidman, Philadelphia: Every one here has heard of "poultry itch" and "bird scabies." In the Philadelphia Zoological Gardens statistics on the parasites of birds have not been collected, but I do not recall that the finches, to which the canary belongs, have been particularly infested. Of all birds that are seen at necropsy, the American barn owl is the most infested, and the eagle and the vulture probably rank next. Speaking of birds that are regarded as pets, I do not recall that the parrots are commonly infested with mites. In any event, one has an addition today to one's knowledge of avian mites.

In line with the fact that Dr. Sulzberger's patient had to do with a bird that was dead, one has a parallel, perhaps, to what Dr. Shelmire reported in connection with dermatitis from rats' mites. When particularly energetic campaigns in eradication of rats went on the mites transferred themselves to man. Of course, one knows that the mites of poultry transfer to farmers and others who come in contact with poultry, and that they forsake birds when the birds die and transfer their attention to other animals.

The practical point, I think, is this: When one sees in man a condition that is apparently scabies but does not quite fulfil the requirements for diagnosis one should think of some other parasite that might be responsible for the condition.

A number of years ago I attempted to devise a technic by which cutaneous parasites of animals could be detected. I sprayed chloroform water over the skin of scabetic patients and then scraped the skin with a safety razor. The fluid secured was centrifugated and examined microscopically. I was not successful but some such method might be useful in the case of those parasites which do not burrow.

Dr. Fred Wise, New York: Dr. Sulzberger reported a consultation in which I participated. The eruption interested me because I did not know what I was looking at. I think avian scabies is not a common eruption. When I was a

young man there were many pigeon-fanciers in New York; yet, I do not recollect encountering cases such as Dr. Sulzberger described. I visited the zoo in New York recently and took occasion to question the bird-handlers there and was told they do not have any trouble with birds' parasites. Nevertheless, one has to be constantly on the watch for such cases. It would be interesting to know whether the parasite is carried from patient to patient in the same ways as the ordinary Acarus of scabies.

Dr. Udo J. Wile, Ann Arbor, Mich.: A number of years ago Dr. Weidman sent me a beautiful specimen of scabies in a rabbit. As I understand it, there are two types of scabetic infestation in rabbits. One is due to Notoedres cati (Otodectes cati), which is occasionally found in man, and the other is caused by a parasite found exclusively in animals.

Dr. J. Frank Fraser, New York: In 1917 I observed an epidemic of scabies in red squirrels. Under the microscope the mite resembled closely Acarus of man. The squirrels all died; none of the attendants who handled these animals contracted the disease.

Dr. Marion B. Sulzberger, New York: Concerning what Dr. Williams said, it is true that when the parasite does not find its natural host it becomes hungry and begins to attack other hosts. I believe that it was for this reason that the pruritus in our first cases became worse when the bird died and when the starving mites were forced to forage for a new source of nourishment. Dermanyssus, which was the cause of the dermatoses in our cases, is a biting mite, not a boring one, and produces dermatoses only in susceptible persons.

Regarding Dr. Weidman's remarks concerning the frequency of the infestation of canaries, many of the dealers in canaries whom I have questioned are aware of such infestations and guard against trouble by washing after having had contact with the birds. We have examined eight canaries in other families in which we suspect the possibility of "bird scabies" but have found no carriers of these mites. I believe that they do not affect parrots.

I agree with Dr. Wise that this disease is not common in cities. I think, however, that it must be common in poultry-handlers, and even in cities the possibility must be borne in mind, and it is well to question patients particularly about canaries.

It is not necessary that the transmission take place through the bedding or articles of clothing. The mite is a night feeder which leaves the bird during the day and burrows into the crannies and under rugs and into cracks of the woodwork and into all possible crevices. At night it comes out again looking for the bird, and when it cannot find the bird it attacks any human being who happens to be available. However, this attack seems to produce pruritus in only a small percentage of the persons exposed.

Of course there are many other varieties of mites, of acari, which are parasites specifically of other animals and which occasionally attack man. These are, however, not the subject of our paper. Notoedres cati, which produces scabies in the cat, is a distinct variety, and not infrequently attacks man, producing a scabies-like eruption accompanied by the severest pruritus.

What Dr. Fraser has said is correct; perhaps every species of animal has its own species of Sarcoptes. As I have stated, many of these species of Sarcoptes occasionally produce pruritus and eruptions in human beings.

MIXED TUMOR OF THE PALATE

REPORT OF A CASE

J. R. DRIVER, M.D.
CLEVELAND

A mixed tumor resembling in morphology the type commonly seen in the salivary glands, particularly in the parotid gland, occurs occasionally in the orofacial region. The palate is the most frequent site, except the salivary glands, but such growths have been found also in the lips, jaws, molar glands, nasopharynx, pharynx, nasal fossae, floor of the mouth, tongue and lacrimal glands and orbit and in various areas in the skin of the face and scalp.

In 1928 Eggers,[1] from a survey of the literature on palatal mixed tumor dating back to 1856, collected reports of over 100 cases, in 87 of which the histologic descriptions were sufficiently accurate to make the diagnosis probable. With the addition of 5 cases which he reported from his own practice the total of 92 cases constitutes the most accurate survey thus far published. In 1931 Holmgren [2] stated that 115 cases of palatal mixed tumor had been reported in the literature.

My interest in the subject was stimulated by the occurrence of a case in 1934 in the practice of Dr. H. N. Cole and myself. A report of the case is made later in this communication.

From a fairly careful survey of the literature subsequent to Eggers' report, it has been possible to collect reports of 107 additional cases, making a total of 199, in which the diagnosis was presumably made from morphologic studies. Table 1 gives the sources and dates of the reports.

It is interesting to note that of 74 cases of mixed tumor of the orofacial region observed by New and Childrey [3] at the Mayo Clinic from 1917 to 1930, in 39, or 56 per cent, the growth was located in the palate.

From the Department of Dermatology and Syphilology of the School of Medicine of Western Reserve University and of the University Hospitals.

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, W. Va., May 2, 1935.

1. Eggers, H. E.: Mixed Tumors of the Palate, Arch. Path. **6**:378 (Sept.) 1928.

2. Holmgren, L.: Tumeurs mixtes du voile du palais, Acta oto-laryng. **16**: 286, 1931.

3. New, G. B., and Childrey, J. H.: Tumors of the Tonsil and Pharynx (Three Hundred and Fifty-Seven Cases): II. Adenocarcinomas of the Mixed Tumor Type (Seventy-Four Cases), Arch. Otolaryng. **14**:699 (Dec.) 1931.

This is by far the largest number of cases of palatal mixed tumor reported from a single source. With the exception of 8 cases reported by Chen and Loucks [4] in China, 6 cases each by Thibaudeau and Burke [5] and by Schreiner and Mattick [6] and 5 cases each by Eggers [1] and Patey,[7]

TABLE 1.—*Incidence of Mixed Tumors of the Palate*

Case Reported by	Number of Cases Reported	Year Reported
Eggers [1] (collected from literature)	87	1856 to 1927
Souchet [19]	1	1926
Chamberlin: Tr. Am. Laryng., Rhin. & Otol. Soc. **33**: 175, 1927	1	1927
Koch [11]	1	1927
Mayer: Zentralbl. f. Hals-, Nasen- u. Ohrenh. **12**: 127, 1927	1	1927
Eggers [1]	5	1928
Razemon and Aliphant: Presse méd. **36**: 522, 1928	1	1928
Murata: Otologia, Fukuoka **1**: 875, 1928	1	1928
Errecart and Samengo: Rev. de especialid. **3**: 369 (Aug.) 1928	1	1928
Layera and Orosco: Prensa méd. argent. **15**: 890 (Dec. 30) 1928	1	1928
Maksomović: Zentralbl. f. Hals-, Nasen- u. Ohrenh. **14**: 133, 1929	2	1929
Spring: Arch. f. klin. Chir. **156**: 203, 1929	1	1929
Tadaki: Otologia, Fukuoka **2**: 249, 1929	1	1929
Guida: Cultura med. mod. **8**: 680 (Aug. 15) 1929	1	1929
Schreiner and Mattick [6]	6	1929
Zireškin: Zentralbl. f. Hals-, Nasen- u. Ohrenh. **14**: 280, 1929	1	1929
Sonnenschein [17]	2	1930
D'Aunoy [16]	2	1930
McGibbon: Brit. M. J. **2**: 776 (Nov. 8) 1930	1	1930
Worms: Presse méd. **38**: 473, 1930	1	1930
Soubiron and Bianchi: Rev. de especialid. **5**: 1891 (Nov.) 1930	1	1930
Jungert: Zentralbl. f. Hals-, Nasen- u. Ohrenh. **15**: 62, 1930	1	1930
Thibaudeau and Burke [5]	6	1930
Patey [7]	5	1930
Blumberg and Terry [18]	1	1931
Holmgren [2]	3	1931
Gandini: Arch. ital. di otol. **42**: 338 (Aug.) 1931	1	1931
New and Childrey [3]	39	1931
Barmwater: Acta oto-laryng. **16**: 1, 1931	2	1931
Carruthers: M. J. Australia **2**: 692 (Dec. 3) 1932	1	1932
Pellegrini: Valsalva **8**: 454 (June) 1932	1	1932
Brinch: Ztschr. f. Stomatol. **30**: 401, 1932	2	1932
Malan: Arch. ital. di laring. (supp.) **51**: 11, 1932	2	1932
Chen and Loucks [4]	8	1933
Menzel: Monatschr. f. Ohrenh. **67**: 622, 1933	1	1933
Halpert: Yale J. Biol. & Med. **5**: 469 (May) 1933	1	1933
Heitz: Lyon méd. **152**: 37 (July 9) 1933	1	1933
Peyser: Internat. Zentralbl. f. Ohrenh. **36**: 293, 1933	1	1933
Franssen [8]	3	1934
Driver	1	1935
Total	199	

the remainder of the reports were of 1, 2 or 3 cases each. It is apparent that in recent years there has been a much greater frequency of the

4. Chen, H. I., and Loucks, H. H.: Composite Tumors of Salivary Glands: Clinicopathologic Study of Forty-Five Cases, Chinese M. J. **47**:138 (Feb.) 1933.

5. Thibaudeau, A. A., and Burke, E. M.: Histological Study of Salivary Gland Tumors, J. Cancer Research **14**:440 (Aug.) 1930.

6. Schreiner, B. F., and Mattick, W. L.: Tumors of the Salivary Glands Based on a Study of Sixty-Six Cases, Am. J. Roentgenol. **21**:541 (June) 1929.

7. Patey, D. H.: Mixed Tumors of Salivary Glands, Brit. J. Surg. **18**:241 (Oct.) 1930.

reports. Patey expressed the belief that the mixed tumor is probably the commonest encapsulated tumor of the palatal region.

Although accurate statistics are not available, approximately 90 per cent of the so-called mixed tumors are found in the parotid or submaxillary glands. In an analysis of the mixed tumors seen in the anatomic and pathologic laboratories in the Medical School of the Netherlands Indies (Java) over a period of eleven years, Franssen [8] found 40 on the salivary glands and 14 on the face or palate. In the report of Chen and Loucks,[4] in 8 of the 45 cases the tumor was on the palate. The authors expressed the opinion that mixed tumor of the orofacial region is much more frequent in China and the Netherlands Indies than in other parts of the world. This view was also expressed by Bonne [9] of Batavia and by Noosten and Voss.[10] A study of the statistics of the University Hospitals in Cleveland from Jan. 1, 1921, until Jan. 1, 1935, reveals that during that time there were 24 cases of mixed tumor of the parotid gland, 7 of the submaxillary gland, 1 of the soft palate, 1 of the nasal fossa and the one of the hard palate reported here.

Accurate statistics are not obtainable because in some instances the exact location of the tumor was not stated, but it is the consensus of several writers that this type of growth occurs more frequently on the hard palate. Koch [11] in 1927 examined the reports of 55 cases of mixed tumor of the hard palate which had appeared in the literature during the previous thirty years. He found that the sexes were affected about equally and that the tumor appeared at any age, but more often in the third and fourth decades of life. On the soft palate it was invariably on one or the other side of the midline, while on the hard palate it occupied, with few exceptions, a midline position.

REPORT OF A CASE

History.—Mrs. F. F. J., aged 42, was seen first on Sept. 14, 1934. She stated that about ten years previously she noticed a small growth on the hard palate, not much larger than a "small shot." It continued to grow slowly, and two years before she was seen it had become approximately the size of a small olive. At that time she consulted a physician, who treated it by light applications of the high frequency current. Following the treatment the tumor grew much more rapidly. There had never been any subjective symptoms.

8. Franssen, R.: Tumeurs mixtes de la face et du palais, Ann. d'anat. path. **11**:275 (March) 1934.

9. Bonne, C., and others: Cirrhosis of Liver in Dutch East India, Geneesk. tijdschr. v. Nederl. Indië **71**:506 (June 1) 1931.

10. Noosten, H. H., and Voss, J. J. T.: Parabuccal Mixed Tumors with Special Consideration of Cylindromas of Antrum of Highmore, Geneesk. tijdschr. v. Nederl.-Indië **73**:1453 (Nov. 7) 1933.

11. Koch, F.: Zum Vorkommen der Mischgeschwülste am weichen Gaumen, Wien. klin. Wchnschr. **40**:780 (June 16) 1927.

Examination.—The tumor was located on the hard palate in the median line at the junction of the hard and soft palates and extending forward. It resembled in size and shape a large olive, measuring 4 by 3.5 cm. in diameter. The surface was smooth and glistening and pale bluish pink, with a few superficial capillaries visible on the surface. The consistency was fairly firm, but elastic, and on palpation the mass gave the impression of being cystic and encapsulated. It was not movable, and the overlying mucosa was firmly attached. There was no tendency to ulceration.

Biopsy.—A specimen taken for biopsy was examined by Dr. Alan R. Moritz, of the department of pathology of the school of medicine of Western Reserve University, who reported as follows: "The specimen included two small fragments of soft, grayish-white tissue, the larger of which measured about 1 cm. in its greatest diameter. One surface of each was smooth. Microscopic examination disclosed tumor tissue lying beneath a mucous membrane covered by an intact layer of stratified squamous epithelial cells. The epithelium was separated from

Figure 1

Figure 2

Fig. 1.—Drawing showing a mixed tumor of the palate of ten years' duration before treatment.

Fig. 2.—Photograph showing the site of a mixed tumor of the palate after treatment by interstitial irradiation with platinum radium needles.

the tumor by a narrow zone of loose fibrous connective tissue. The tumor had a thin capsule which had been invaded with the extension of tumor cells into the mucous membrane. The cells were small and varied from spindle to cuboidal shapes, the latter form lining small alveoli containing homogeneous, acidophilic material. The tumor was irregularly penetrated by broad, hyalinized trabeculae and was for the most part poorly vascularized. Mitoses were uncommon. The diagnosis is mixed tumor (salivary gland type) of the palate.

Treatment.—On September 24, with the area under local anesthesia, after aspiration had been unsuccessful, proving that the lesion was not cystic, five 1 mg. radium needles with screening of 0.5 mm. of platinum were inserted into the base of the tumor. Three were inserted from the rear and two from the front, in approximately end-to-end arrangement. Braided silk sutures attached to the needles were tied together across the surface of the tumor so that the two groups

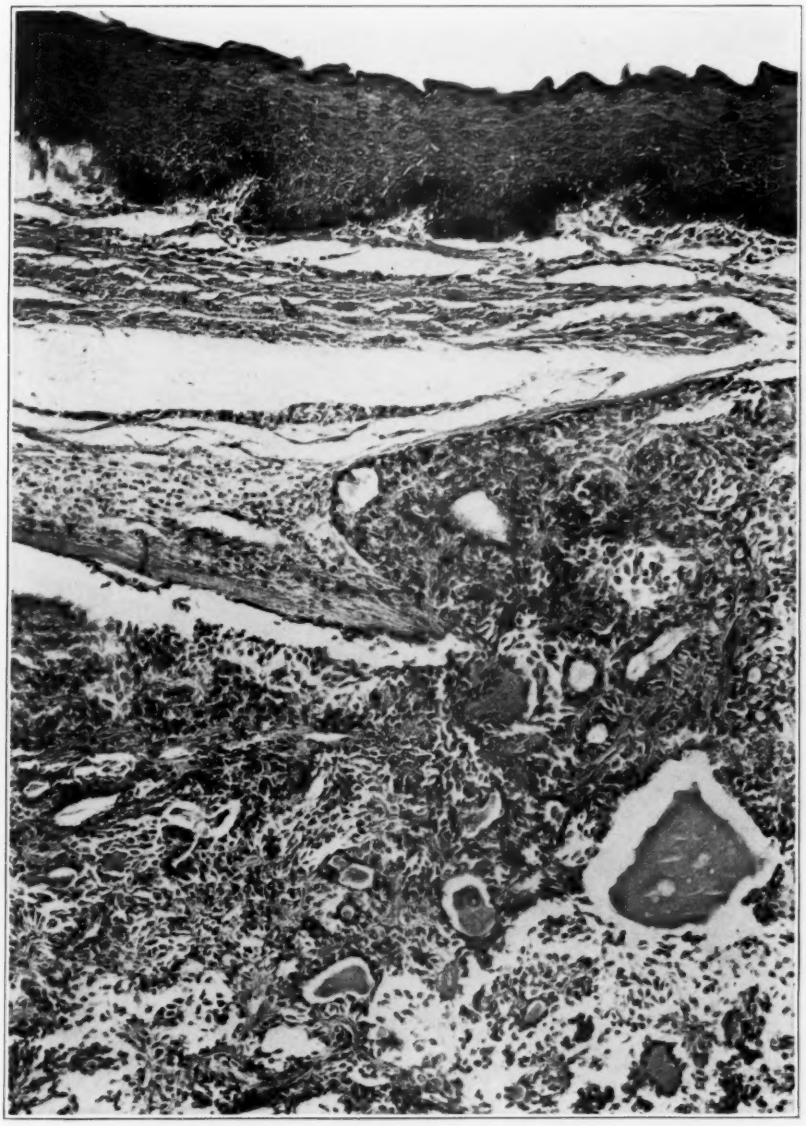


Fig. 3.—Photomicrograph (× 110) of a section of a tumor including mucous membrane of the palate. The tumor has extended through the capsule in the center of the field. There is considerable pleomorphism of cells, ranging from spindle to cuboidal shapes. The cuboidal cells line alveolar spaces filled with homogeneous acidophilic material.

of needles were held firmly in place. They were left in situ for seven days, giving a total dose of 850 milligram hours. Regression of the tumor was rather slow, being complete at the end of six weeks. Complete healing had occurred by the tenth week. There was little discomfort as a result of the treatment. On March 15, 1935, when the patient was last seen, the appearance of the palate was practically normal, there being little or no evidence of scar formation.

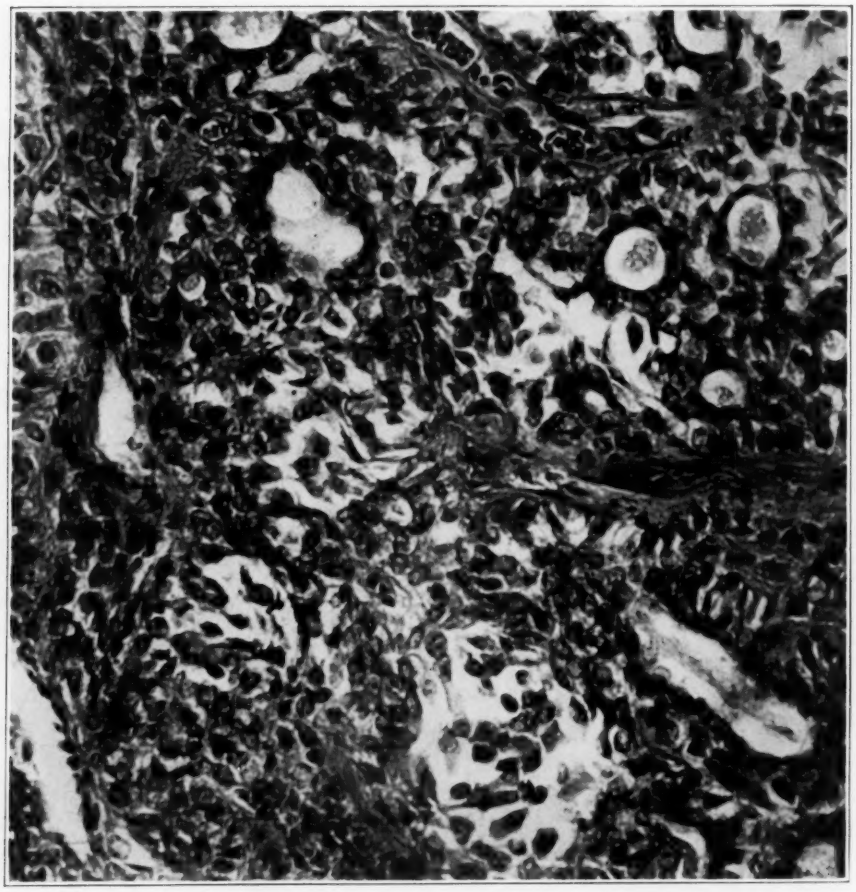


Fig. 4.—Photomicrograph (× 325) of a section of a mixed tumor showing the various cell types and including several alveoli. The nuclei do not vary greatly, and cells in the process of mitosis are rare.

DESCRIPTION AND DIAGNOSIS

The mixed tumor is characterized by heterogeneity of the tissues contained in it, as well as by great irregularity in the arrangement of cells.

According to McFarland,[12] the following structures may be present: (1) connective tissues, including cartilage of various types, mucous tissue of various types, fibrillar connective tissue and, rarely, bone, adipose tissue, muscle tissue and lymphoid tissue; (2) epithelial tissues, including glandular epithelium, which is almost always present, and squamous epithelium, which is noted in the majority of cases. Several or all of the types of tissue may be present in any one tumor.

As was shown by Eggers [1] in a comparison of the structure of mixed tumors of the parotid and submaxillary glands and those of the palate, there is a lower incidence of cartilage and a higher incidence of squamous epithelium in the latter. The palatal tumors are almost always encapsulated. Ewing [13] pointed out that few of the miscellaneous mixed tumors duplicate the complex structure of the growths on the salivary glands. Most of them are more simple and fall into the group of adenoid cystic epithelioma or cylindroma.

Various names have been applied to the mixed tumors, according to their pathologic picture. They have been called myxochondrocarcinoma, fibromyxo-endothelioma, chondroma, cylindroma, endothelioma, adenoid cystic epithelioma, etc. Their chief histologic peculiarity is a tendency to hyaline and mucoid degeneration both of the epithelial strands and of the connective tissue stroma. In the palatal tumors the cells are often arranged in the fashion of a cylindroma. New and Childrey [3] maintained that since the tumors are adenocarcinomas of a specific type, they should be designated as such rather than as mixed tumors, which is not so definite.

The infiltrating type of epithelium usually present gives an alarming appearance of malignancy, but clinically a mixed tumor is benign and causes symptoms only because of its size or location. Often a growth has attained a size sufficiently great to interfere with phonation, deglutition or respiration before the patient consulted a physician. Generally the tumor is oval or rounded, with the mucous membrane intact over the surface and bluish pink. On palpation it is firm and often elastic, and in many instances gives the impression of being cystic. Usually it is movable, circumscribed and nonulcerated, and the encapsulated character is demonstrable.

According to New [14] a clinical diagnosis should not be difficult. He stated: "The hard tumor which feels malignant and has existed for several years during which time it has been slowly enlarging without

12. McFarland, J.: Ninety Tumors of Parotid Region, in All of Which Postoperative History Was Traced, Am. J. M. Sc. **172**:804 (Dec.) 1926.

13. Ewing, James: Neoplastic Diseases, ed. 3, Philadelphia, W. B. Saunders Company, 1928, p. 774.

14. New, G. B.: Mixed Tumors of Throat, Mouth and Face, J. A. M. A. **75**: 732 (Sept. 11) 1920.

breaking down is characteristic. In the pharynx and palate they must be distinguished from a nasopharyngeal fibroma that has filled the nasopharynx and bulges the palate."

Neurofibroma (neurinoma, schwannoma) is rare and occasionally resembles a mixed tumor in appearance and consistency. If the tumor is located in the midline of the hard palate the clinical differentiation is more difficult. An associated neurofibromatosis of the skin would be a valuable differential point.

Symmetrical fibromas of the palate arising near the molar teeth should not be confusing, since a mixed tumor is always single.

Osteoma is fairly common on the hard palate and has a bony hardness that is characteristic. It results from overdevelopment of the tori palatini and appears as a raised, flat, bony swelling in the exact midline.

Carcinoma of the palate is of fairly common occurrence. It is never encapsulated, but infiltrates into the surrounding tissues early and breaks down with ulceration, producing an irregular, fungating base. Associated metastases to lymph nodes in the neck may be present.

Cystadenoma of the palate resembles the mixed tumor more than any other lesion and usually can be differentiated only by biopsy.

The typical locations of mixed tumor of the palate and the consistency, mobility, long duration and lack of ulceration or other malignant sequelae of the growth make a clinical diagnosis possible in most instances. There is usually no contraindication to performing a biopsy in order to establish the exact diagnosis.

ORIGIN

It is not necessary to discuss the numerous theories or the controversy which has arisen over the origin of the mixed tumor. Suffice it to say that the theory of enclavement or of accidental sequestration of embryonal cells during the early and complicated development of the face and neck best explains the phenomenon and has won the largest number of supporters. Letulle [15] coined the word *dysembryoplasie* as being descriptive of the development of the neoplasm.

D'Aunoy [16] summed up this view as follows: "While metaplastic processes appear as essential to a full explanation of tissue transitions within the same class, they need not be resorted to for full explanation of all mixed tumors, nor even of any, if the broadest conception of embryonal sequestration is accepted; for then the number and character of sequestered tissue elements readily account for the varying histologic character of the adult tumors. That the enclavement theory presents

15. Letulle, M.: Deux observations de kystes amygdaloides à épithéliums cylindriques de la region parotidienne, Bull. Assoc. franç. p. l'étude du cancer **16:** 380 (May) 1927.

16. D'Aunoy, R.: Mixed Tumors of Palate, Am. J. Path. **6:**137 (March) 1930.

the correct solution of mixed tumor genesis appears at this time incontrovertible."

Eggers [1] expressed the belief that in the case of the palatal tumor the apparent transition from epithelial to connective tissue can be explained by actual metaplasia of epithelium into mucoid connective tissue or cartilage of the mucous glands in this region.

Sonnenschein [17] concluded that a mixed tumor is probably an individual entity having no relation to the normal structures in which it occurs and from which it does not arise. From the various locations in the region of the head and neck in which the tumors are found, it is evident, according to Noosten and Voss,[10] that it can no longer be assumed that every parabuccal mixed tumor arises from displaced salivary gland tissue. They expressed the belief that such a tumor may arise from any of the groups of mucous glands, lacrimal glands and salivary glands occurring in the head and neck.

Ewing [13] stated that the theory of embryonic displacement or enclavement is the most commonly accepted explanation of the origin of encapsulated or extraglandular tumors which take the form of basal cell or adenoid cystic epithelioma.

TREATMENT AND PROGNOSIS

With few exceptions the mixed tumors of the palate have been treated surgically, for they are encapsulated and are easily removed by blunt dissection. If the tumor is completely removed the prognosis is excellent. However, if any of it remains, recurrence within a few weeks, or sometimes only after several years, is the rule. The recurrence is local, and because the growth may not be encapsulated it may become destructive locally, although producing no metastases. No instance of metastases resulting from a palatal mixed tumor has been found. However, there is no doubt that occasionally after spontaneous, traumatic or surgical rupture of the capsule and recurrence resulting from incomplete removal, a mixed tumor located in the salivary glands metastasizes widely, as was shown by McFarland,[12] Chen and Loucks,[4] Eggers [1] and others. Blumberg and Terry [18] pointed out that atrophy of the bone and perforation of the palate may occur as a result of pressure.

According to Holmgren,[2] a contraindication to operation is an intimate adherence to the great vessels in the neck, such as might be found in some cases of a large tumor of the soft palate or pharynx. He suggested that in cases of this type, or those in which other contra-

17. Sonnenschein, R.: Mixed Tumors in Soft Palate: Reports of Two Cases and Survey of Recent Literature, Arch. Otolaryng. **11**:137 (Feb.) 1930; also, Tr. Am. Laryng. A. **51**:235, 1929.

18. Blumberg, A., and Terry, G. H. B.: Mixed Tumor Involving Hard and Soft Palate: Case Report, South. M. J. **24**:333 (April) 1931; also, U. S. Vet. Bur. M. Bull. **7**:501 (May) 1931.

indications are present, high voltage roentgen rays may be used effectively. Sonnenschein [17] also recommended the use of roentgen rays in cases in which surgical removal is inadvisable.

The only instance I have found of interstitial irradiation by radium of a palatal mixed tumor was reported by Souchet.[19] The tumor had recurred as a "large mass" six months after surgical removal. Six radium needles, totaling 25 mg., were buried in a circle in the tumor for nine hours, and the treatment was repeated two days later. The growth disappeared, and there was no sign of recurrence when the patient was seen twenty months later.

In many cases a mixed tumor of the parotid glands has been treated successfully by roentgen rays or radium; this treatment is especially valuable for a large tumor, since damage to the facial nerve from operation is thus avoided. In many instances of recurrence following operation Schreiner and Mattick,[6] Wickham [20] and Balestra [21] used radiation with apparently good results. Stewart [22] believed that the tendency in many cases for the tumor to regress under irradiation is probably the result of chronic "discouragement" of cells, the neoplastic properties of which are by no means always aggressive. Quick [23] pointed out that all types of mixed tumor do not respond equally well to radium, the more cellular varieties giving the best results, while the acellular myxomatous growths are rather resistant. For this reason he recommended a preliminary biopsy in order to determine the character of the tumor. New and Childrey [3] stated: "If the tumor is so extensive that removal is impossible, it may be destroyed by cautery or diathermy, with supplementary use of radium; if this is not possible, radium seeds or needles may be inserted throughout the neoplasm."

Since a palatal mixed tumor is usually more cellular than mixed tumors in other locations, radiosensitivity is greater and irradiation would be more effective. From the response of the tumor which I treated and from the result obtained by Souchet [19] with a comparatively small amount of radiation, it seems that the mixed tumor, in regard to radiosensitivity, is intermediate between lymphosarcoma and carcinoma.

I feel that radiation has a definite place in the treatment of palatal mixed tumor, particularly when the growth is in the hard palate, where its location makes possible the interstitial use of radium needles. In

19. Souchet, I. A.: Radium Treatment of Malignant Mixed Tumor of the Palate, Rev. de laryngol. **47**:462, 1926.

20. Wickham, Y. L.: Quelques observations de cancers de la parotide traités par la curiethérapie seule ou associée à la chirurgie, Bull. Assoc. franç. p. l'étude du cancer **19**:370, 1930.

21. Balestra, G.: Radiol. med. **16**:574, 1929.

22. Stewart, F. W.: Radiosensitivity of Tumors, Arch. Surg. **27**:979 (Dec.) 1933.

23. Quick, D.: Radium Report of the Memorial Hospital, New York, Paul B. Hoeber, Inc., 1923, p. 93.

the soft palate radon seeds could probably be used effectively. Especially in cases of recurrence, in which further operative procedure would be difficult, irradiation of the growth by one of the two methods appears to be the treatment of choice.

Although malignancy is perhaps more apparent than real in the palatal tumor, it is generally believed that the growth should be looked on with suspicion and that after its removal the patient should be kept under observation for a long period, since even years later it may recur.

SUMMARY

A review of the literature since 1928 reveals reports of 107 cases of mixed tumor of the palate. This type of neoplasm is, therefore, not so rare as has been previously believed.

A report, with a description of the histologic observations, is made of a mixed tumor of the hard palate which was successfully treated by interstitial irradiation with low intensity platinum radium needles. In cases of mixed tumor in this location it is believed that this treatment is often the method of choice.

The differential diagnosis from other types of tumor in the palatal region is discussed.

It is pointed out that the enclavement or accidental sequestration theory of the origin of the mixed tumor is now accepted by many leading pathologists.

While morphologically a mixed tumor appears malignant, clinically it is benign and rarely produces metastases. Local recurrences occur if the tumor has not been completely removed.

1352 Hanna Building.

ABSTRACT OF DISCUSSION

DR. H. G. IRVINE, Minneapolis: I was interested to hear Dr. Driver express an opinion on the prognosis of the mixed tumor. A patient of mine, who was an important man in the community and for whom I had treated a number of keratoses on the ear, during a vacation trip acquired a tumor just under the angle of the jaw. It was a question whether it might be an enlarged gland or a tumor in the parotid gland. On biopsy the pathologist gave a bad prognosis to the family, which disturbed them greatly for several months. Fortunately, the surgeon and I thought that something could be done. The tumor was resected carefully, and the area was treated by high voltage roentgen therapy. That was six years ago and there has been no evidence of recurrence.

DR. UDO J. WILE, Ann Arbor, Mich.: I wonder if Dr. Driver in summing up will explain a little more clearly his reasons for regarding the growth in his case as a mixed tumor. From the sections shown I did not see how it could be differentiated from cystadenoma.

DR. PAUL A. O'LEARY, Rochester, Minn.: Favorable comment should be made on the omission of "salivary glands" from the title of the paper, because it is well accepted that the tumor lies on the glands and involves the gland only after the capsule is ruptured and extension of the tumor occurs.

The second lantern slide shown seems to me to be of particular significance, as it demonstrates how meddling with a tumor of this type, as was done with a fulguration electrode before the patient came under Dr. Driver's care, leads to rupture of the capsule and spread of the tumor in situ. Dr. Driver commented on the fact that usually the mixed tumor is radioresistant, and a possible explanation for the excellent result from the radium in the case he has reported may be that the capsule had been previously ruptured. When the capsule is intact, the tumor can be shelled out like a cherry pit without danger of recurrence. If, however, the capsule has been broken, surgical removal is usually followed by recurrence at the same place.

Dr. William Allen Pusey, Chicago: While usually a mixed tumor is benign as regards life, it is potentially dangerous. I recall 2 cases of mixed tumor of the parotid gland in which metastasis occurred, while in probably 25 others the course has been controlled and the patient is living or has died of something else.

Dr. Fred D. Weidman, Philadelphia: I have seen 5 or 6 cases of mixed tumor of the parotid gland in the last two or three years, all at a hospital where Dr. McFarland, who was quoted by Dr. Driver, is one of the consultants. Thus there has been opportunity for the fullest consideration of this type of tumor, including correct diagnosis. The surgeon hesitates to interfere with such a tumor on account of the facial paralysis that may result. Dr. McFarland has always been opposed even to biopsy on the theory that the progress of the disease is accelerated, but I think that he is now receding from that position. I am glad to hear a report that there is some possibility of cure by irradiation, on the basis of what is shown by histologic examination. On careful histologic examination it is rather common for a mixed tumor to show an adenomatous appearance, and it has always been a question whether radiation therapy has value in the treatment of this type of tumor. That is, there has been doubt as to whether the lesion treated was really a mixed tumor and not an adenocarcinoma. It is too bad that radiation therapy generally prevents examination of all parts of the lesion. I recommend that in cases in which biopsy is done the surgeon be encouraged not to be too fearful but to give the pathologist as large a specimen as possible to work with. In this way, other and more distinctive parts of the lesion than the adenomatoid ones will be offered for study.

Dr. James R. Driver, Cleveland: Replying to Dr. Wile's question, I find that many writers have included cystadenoma as a mixed tumor. In any single microscopic section presented there might be some difficulty in differentiating between cystadenoma and adenocarcinoma. The fact that only a small portion of the tumor is examined makes the classification more difficult.

Dr. Weidman spoke of the advantage of having the entire tumor for examination. This, of course, is possible only when surgical removal is carried out. In the case reported here the specimen for biopsy was taken at the time of insertion of radium needles. It is my feeling that in cases of tumor of the palate, interstitial irradiation is, in many instances, the method of choice, and a specimen for biopsy taken from a small portion of the tumor should suffice to make the diagnosis. The tumor is clinically benign in character but does have a tendency to recur unless thoroughly removed either surgically or by irradiation, and if recurrence takes place the disease sometimes becomes destructive locally but rarely, if ever, produces metastases to the lymph nodes. My study of the literature failed to reveal a single instance of metastasis from a mixed tumor of the palate. That a mixed tumor of the salivary glands occasionally produces extensive metastases is well known.

LOCALIZED (LICHEN) AMYLOIDOSIS OF THE SKIN

REPORT OF TWO CASES, WITH VITAL STAINING OF THE AMYLOID NODULES BY CONGO RED INJECTED INTRACUTANEOUSLY OR SUBCUTANEOUSLY

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Amyloidosis of the skin may be separated into several groups which present more or less classic findings. The clinical picture of lichen amyloidosis, typified in the cases here reported, is now well enough known that when signs of this type are observed the presence of the condition should be suspected in most cases and the diagnosis proved by biopsy or by vital staining with congo red after intracutaneous or subcutaneous injection, as was done in the cases reported here. Amyloidosis of the skin and muscle is, according to Michelson and Lynch [1] equally characteristic, but strangely enough classic generalized amyloidosis is seldom if ever accompanied by cutaneous lesions. Deposits of amyloid in senile lesions such as those seen in cases of keratosis senilis have been adequately discussed by Freudenthal.[2] Other as yet unclassified types of localized amyloidosis occur.

To Koenigstein [3] must go the credit for calling the attention of dermatologists to the fairly constant macroscopic and microscopic changes in cases of localized and of systematized amyloidosis. Adequate reviews on localized (Winer) [4] and on systematized (Michelson and Lynch) [1] amyloidosis are found in the American literature. Nothing new, except vital staining of the amyloid papules by congo red and a new theory of the probable pathogenesis can be added to the excellent and comprehensive reviews of Koenigstein and Freudenthal.

The present report will deal with the findings in two typical cases of localized amyloidosis of the skin of both legs, which, as far as I

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, W. Va., May 3, 1935.

1. Michelson, H. E., and Lynch, F. W.: Systematized Amyloidosis of the Skin and Muscles, Arch. Dermat. & Syph. **29**:805 (June) 1934.

2. Freudenthal, W.: Amyloid in der Haut, Arch. f. Dermat. u. Syph. **162**:40, 1930.

3. Koenigstein, H.: Ueber Amyloidose der Haut, Arch. f. Dermat. u. Syph. **148**:330, 1925.

4. Winer, L. H.: Local Amyloidosis of the Skin, Arch. Dermat. & Syph. **23**:866 (May) 1931.

know, are the first cases of localized amyloidosis in America to be reported, as Winer's report in this journal dealt with a case observed in Europe. Neither can I find a record of previous vital staining of amyloid lesions of the skin following intracutaneous or subcutaneous injection of congo red, though the conventional Bennhold test [5] for generalized, noncutaneous amyloidosis was frequently done.

REPORT OF CASES [5a]

CASE 1.—A man, aged 53, Polish, stated that his disorder had been present for twenty-three years. It began in the middle of the anterior surface of the right leg following a fracture and soon appeared on the left leg and then spread slowly.

Fig. 1 (case 1).——Posterior view of the legs, showing pinpoint-sized lesions at the upper part. In the region of the wound left by removal of tissue for biopsy are a group of darker papules as a result of vital staining with congo red injected locally.

Considerable pruritus was present, but except for mild asthma of ten years' duration the patient's general health was good. A complete physical examination revealed no signs of systematized amyloidosis. The Wassermann reaction was negative, and urinalysis gave negative results. The blood count was normal, and a roentgenogram of the chest presented a normal picture.

5. Bennhold, H.: Ueber die Ausscheidung intravenös einverleibten Kongorotes bei den verschiedensten Erkrankungen insbesondere bei Amyloidose, Deutsche Arch. f. klin. Med. **142**:32, 1923.

5a. The first case was presented before the Chicago Dermatological Society on Oct. 18, 1933 (Arch. Dermat. & Syph. **29**:470 [Sept.] 1934). The second was presented on April 18, 1935.

A symmetrical eruption was present on the legs (figs. 1 and 2), extending from about 15 cm. below the knees to about 10 cm. above the ankles. It was most marked over the anterior outer aspects and involved about two thirds of the circumference, the posterior inner surfaces being free. On the outer sides of the legs there was plaque formation, consisting of slightly scaling, brown, markedly lichenified areas made up of confluent papules. The elementary lesions on the backs and sides of the legs were discrete, being firm, brown and slightly scaling papules averaging from 2 to 3 mm. in diameter. The smallest lesion was a pin-point-sized papule of similar appearance. Following roentgenotherapy the papules became translucent. The large lichenified plaques measured approximately 20 by 10 cm.

Fig. 2 (case 1).—Anterior view of the legs. The papules have merged to form infiltrated, branny, scaling brown patches in which the papules are still distinct. These patches simulate lichen simplex chronicus.

Biopsy of an old papule revealed a homogeneous material (fig. 3) forming a lens-shaped mass in the papillary and subpapillary layers of the cutis. In some places this was in contact with, and never widely separated from, the epidermis. The mass contained many pigment-bearing cells, fewer cells resembling young connective tissue cells and a normal number of capillaries. It stained red with methyl violet and yellow with Van Gieson's stain (positive stains for amyloid), but tests with iodine and sulfuric acid gave negative results. At the edge (fig. 4) of the larger masses and in areas where small papules (fig. 5) were beginning amyloid was seen in small masses about the capillaries of the papillae. There was a minimal deposit of amyloid infiltrating between the cells of most hair

follicles, whether they were near to or distant from a deposit of amyloid in the skin. A few elastic tissue fibrils in the vicinity of the follicles stained red with methyl violet.

Aside from this the hair follicles and other adnexa were normal. Elastic tissue was absent in the amyloid masses and also in normal appearing papillae, distant from the deposit. The epidermis over the deposits of amyloid was atrophic but showed marked hyperkeratosis and increased deposits of melanin in the lowermost three or four rows of the epidermis. No inflammatory reaction was noted in any of the numerous sections, and no amyloid was present in the deeper tissues or in the wall of any of the blood vessels.

The Bennhold test for generalized amyloidosis, the intravenous injection of 10 cc. of a 1.5 per cent solution of congo red, was normal, showing a loss of 16 per cent of the dye from the serum in one hour. However, the subcutaneous

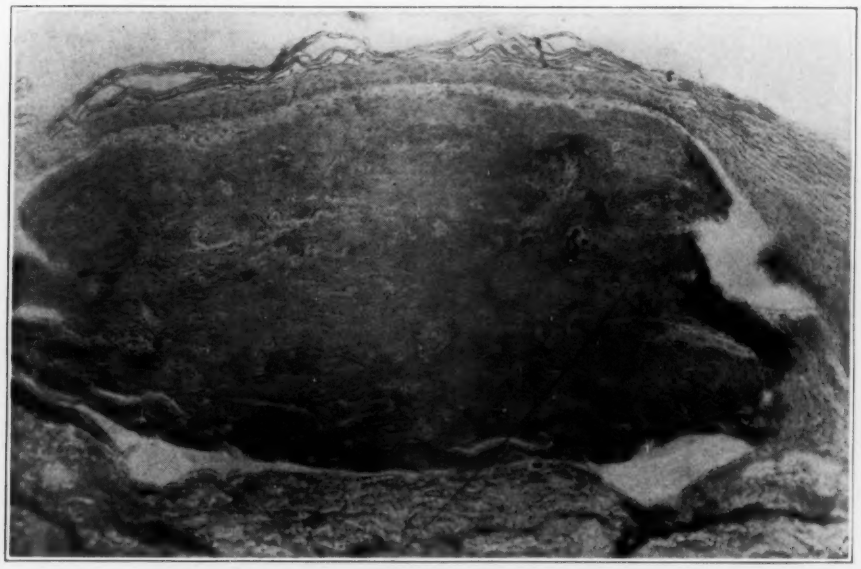

Fig. 3 (case 1).—An old mass of homogenized amyloid just under an atrophic epidermis. Methyl violet stain; × 45.

injection of about 1 cc. of a 1.5 per cent solution of congo red in the vicinity of the amyloid papules resulted in a selective red staining of the papules within twenty-four hours, and six weeks later amyloid papules as far as 10 cm. from the site of the subcutaneous injection remained definitely rose-red. Especially noticeable after this vital staining were a number of pinpoint-sized red lesions, scarcely visible previously, that were the beginnings of amyloid papules. No congo red was demonstrable in the sections of papules from the other leg forty-eight hours after the intravenous injection of the dye.

Case 2.—A man aged 55, an Italian, had been under observation for about fourteen months for supposed lichen simplex chronicus of the right thigh of several years' duration. A few months ago he complained of intense itching of both legs, and simultaneously the lichen simplex cleared up. The condition was disregarded for some time, but the persistent complaints finally resulted in a close examination of the newer disorder. A provisional diagnosis of localized amyloidosis was

made clinically and was proved histologically and by vital staining of the small papules by intracutaneous injection of a 1.5 per cent solution of congo red.

The eruption was present almost symmetrically and involved chiefly the legs. Over both tibias were brown, furfuraceous, scaling patches 15 by 6 cm., extending from 7 cm. above the ankle to 7 cm. below the knee. The condition could not be classed as lichenified, and only after applying oil to the area to remove the effect of the scales could it be seen that there were innumerable small papules 1 mm. in

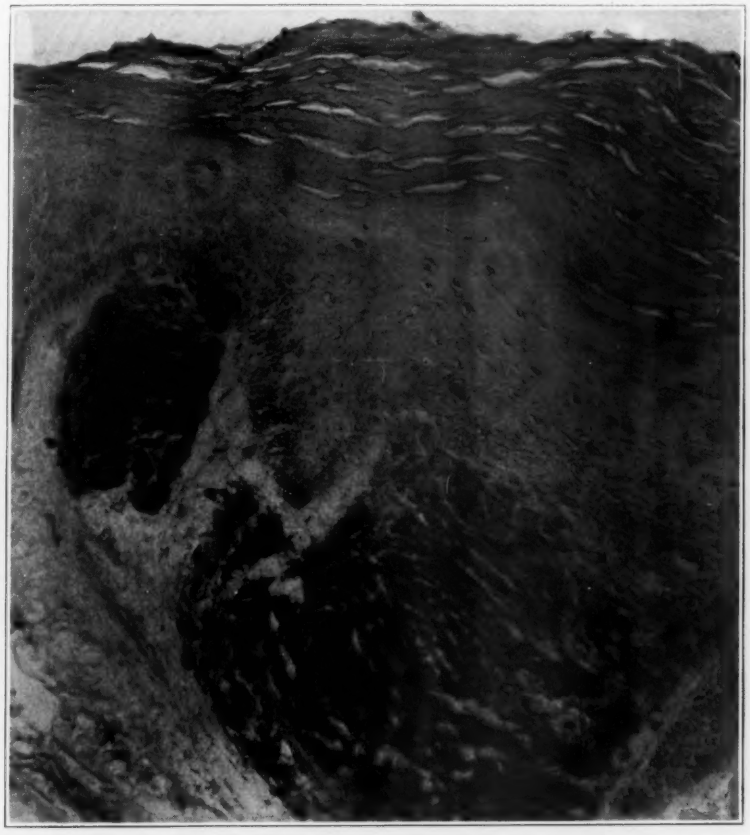

Fig. 4 (case 1).—Amyloid lesion enlarging by involving the neighboring papillae. Marked hyperkeratosis and some acanthosis are present. There is a lack of inflammatory infiltrate. Methyl violet; × 120.

diameter throughout the lesion. On the outer side of both legs (fig. 6) at about the same level was a patch 15 by 9 cm. with less scaling, and consequently the papules were more distinct. There were a few scattered papules on the lower part of the calves, and a few follicular hyperkeratotic lesions, which may or may not have contained amyloid, were found on the posterior portion of the thighs. At the site of the area of lichen simplex on the anterior portion of the right thigh there was no evidence of lichenification remaining, but about a dozen small brown-

ish scaling papules, presumed to contain amyloid, were present at the upper margin. Scarcely any of the papules, which were mostly follicular, making up the eruption were over 1 mm. in diameter. They were not translucent, but a light brown, scarcely distinguishable from normal skin, and they formed what is presumably the earliest visible manifestation of lichen amyloidosis. The intense itching was limited to the legs.

Several small papules, some limited to one or two papillae and others larger, were present in the biopsy specimen. The amyloid was found in groups of definite

Fig. 5 (case 1).—Amyloid deposit limited to one papilla. It is laid down in bodies about the capillaries the size and shape of cells. At *x* and other places shadows of nuclei are seen. Methyl violet; × 200.

small corpuscular bodies the size and shape of a cell around the capillaries of the papillae (fig. 7) without fusion and homogenization into larger collections. In a few of the small, clearcut, roundish amyloid bodies darker staining areas, that of presumed nuclei, were found, but no stain I tried made them stand out distinctly. Over the amyloid infiltrate, which was close to, but never in contact with, the epidermis, there was marked hyperkeratosis and also increased thickness of the prickle cell layer with loss of the rete pegs in the larger lesions. Elastic tissue was absent in the papillae of the entire section examined, but there was no

felting of the connective tissue as in the first case. A moderate perivascular infiltration of round cells was present adjacent to the amyloid. There was no involvement of the adnexa, the walls of the blood vessels or the elastica by amyloid. The amyloid stained red with methyl violet, yellow with Van Gieson's stain, transiently violet with polychrome methylene blue and a typical blue of varying intensity with Wright's stain; it did not react to iodine and sulfuric acid and could scarcely be identified in the sections stained with hematoxylin and eosin because of the small amount and lack of homogenization.

Fig. 6 (case 2).—Outer side of the right leg. The amyloid papules are about 1 mm. in diameter. Note the absence of lesions in the scar.

Complete general physical examination revealed nothing except bilateral inguinal hernia. The reaction to the Bennhold test was normal, with a loss of 20 per cent of the dye from the serum in one hour. There was no evidence of systematized or of generalized amyloidosis. A roentgenogram of the chest was normal. The Wassermann reaction was negative; urinalysis gave negative results, and a complete blood count was normal.

Subcutaneous injection of congo red, as in the first case, did not stain the amyloid papules. Congo red, 0.1 cc. of a 1.5 per cent aqueous solution, was then injected intracutaneously into five areas on the outer side of the leg where the amyloid papules were quite numerous and distinct. A diffuse staining of the skin,

which was present for sixty hours, resulted, and after it faded a slight pinkness of the small papules, still present thirty days later, was seen. It was not nearly as clearcut as in the first case or as in another positive control test in a case of systematized amyloidosis. The pale red color of the papules following intracutaneous injection of congo red might easily be ascribed to the small amount of amyloid present.

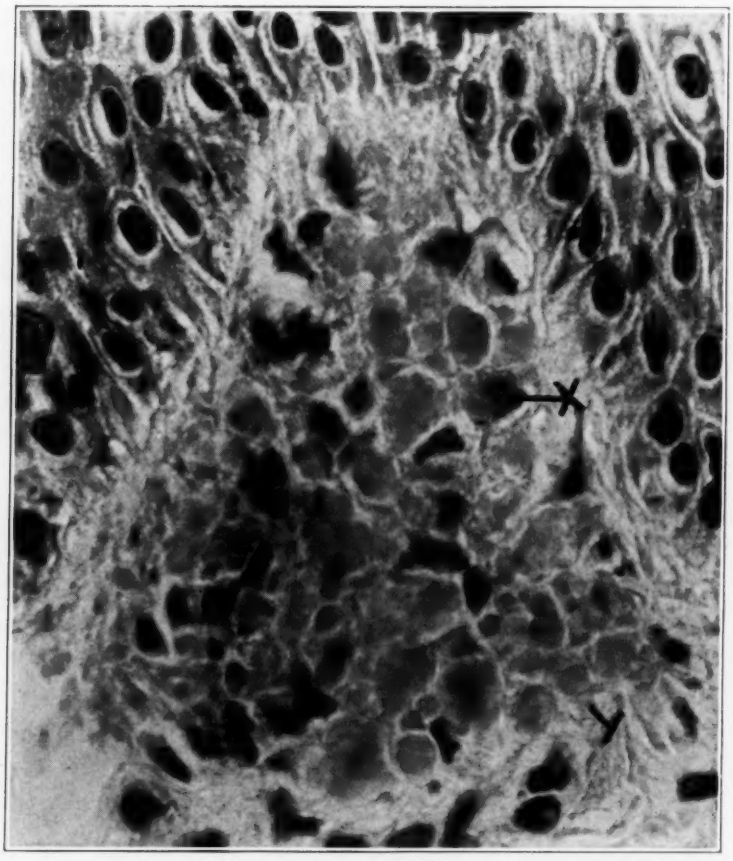

Fig. 7 (case 2).—Amyloid deposit limited to one papilla. The corpuscular nature of the amyloid is clearly shown. At *x* a definite nucleus and above *y* shadows of nuclei can be seen. Wright's stain; × 240.

COMMENT

The clinical picture in these cases is like that in most of the reported cases of lichen amyloidosis and is the type that should make one suspect the presence of the condition, proof of which can be obtained by biopsy or local vital staining with congo red. The elementary lesion is a small papule, which is often translucent and simulates a vesicle

but is more commonly brownish and slightly scaling and is usually said to be from 2 to 3 mm. in diameter. Close inspection in the first case showed the earliest lesion to be a scarcely visible pinpoint-sized brown papule, and all the lesions in the second case were similar small papules. Fusion of the enlarging papules into infiltrated plaques, which bear a marked resemblance to the lesion of lichen simplex chronicus (Vidal), is extremely common and often diagnostic. The disorder has a tendency to localize on the extremities and is most common on the legs below the knee but may occur elsewhere. Intense itching is usually the rule in cases of lichen amyloidosis and, as suggested in the second case, probably precedes the development of visible cutaneous lesions.

Excluding the amyloid found in senile lesions, as in cases of senile keratoses so well considered by Freudenthal, it must be noted that localized amyloidosis of the skin is not always of the lichenoid type. Varying clinical pictures are presented which are so divergent as to defy classification. Sannicandro [6] was able to collect reports of twenty-nine cases of localized amyloidosis from the literature; in thirteen of these the condition simulated lichen simplex chronicus; in three, lichen planus; in six, prurigo, prurigo nodularis or hypertrophic lichen planus, and in seven, other dermatoses. Many of his own ten cases, occurring in senile Italian peasants, seemed to be of a hitherto undescribed type the chief characteristic of which was a widespread eruption on the trunk of large, reticulated, pigmented, shagreen-like patches in which amyloid papules could be distinguished. I was able to find many cases similar to the ones here reported and four cases that were practically duplicates of the first case, those of Gutmann,[7] Wedroff,[8] Maschkilleisson,[9] and Truffi.[10] I was unable to find a case in which the lesions were as small or appeared as early as those in the second case, which if given time would probably have developed into patches resembling lichen simplex chronicus over the tibia by enlargement and fusion of the small papules present.

The pathologic picture in these cases, as is true in most cases of localized amyloidosis, is quite constant. It consists of a deposit of amyloid in small masses the size of an average leukocyte in the papillae

6. Sannicandro, G.: La degenerazione amiloide della cute, Gior. ital. di dermat e sif. **74**:1499 (Dec.) 1933.

7. Gutmann, C.: Zur Kenntnis der Amyloidose der Haut, Dermat. Ztschr. **38**:65 (April) 1923.

8. Wedroff, N. S.: Amyloidose der Haut, kombiniert mit Livedo reticularis und erhöhter Lichtempfindlichkeit, Arch. f. Dermat. u. Syph. **163**:578, 1931.

9. Maschkilleisson, L. N.: Ueber Amyloidose der Haut, Acta dermat.-venereol. **11**:76, 1930.

10. Truffi, G.: Amiloidosi cutanea primativi, Gior. ital. di dermat. e sif. **70**: 64, 1929.

and is associated with acanthosis and hyperkeratosis. As the deposits of amyloid enlarge they become homogenized and lie in large masses or bands immediately under, or in contact with, an atrophic hyperkeratotic epidermis. The hair follicles are usually slightly involved and the walls of the blood vessels rarely, and an inflammatory reaction in the cutis to the deposits of amyloid is seldom reported.

The pathogenesis of the amyloid papule has not yet been satisfactorily explained, most investigators stating that it is formed in small masses about the capillaries of the papillae by infiltration into the meshes of the connective tissue with later homogenization.

Maschkilleisson added something new by showing that small amounts of amyloid were present in the papillae of clinically normal skin of the shoulder at a great distance from any visible cutaneous lesion. Freudenthal also found it in clinically normal skin near amyloid lesions. Section of a pinpoint-sized lesion in the first case and of many lesions in the second case showed amyloid present about the capillary of a single papilla. There seemed to be no infiltration of tissue spaces, but rather the amyloid was laid down in preformed corpuscular bodies, the size and shape of which suggested cells with completely degenerated nuclei. In several places undoubted, though indistinctly stained, nuclei were present in these small amyloid bodies, which still showed a limiting cell membrane. Methyl violet, even when used in high dilution, is a poor nuclear stain, and the amyloid infiltrating into the cell may mask or disintegrate the nucleus very soon. My findings in these cases of early lesions and in those cited previously indicate that the infiltration of amyloid is primary in the upper layer of the cutis, where it may precede any clinical manifestation, except perhaps itching. In addition, there is evidence in both cases that the amyloid infiltrates into cells about the capillaries rather than into tissue spaces. The finding of amyloid in cells about the capillaries of an early lesion agrees with one of the earliest reports on cutaneous amyloidosis, that of Lindwurm,[11] who found many nuclei in the small amyloid bodies which he presumed to be part of the walls of proliferating capillaries. Further studies must be made on the earliest lesions to prove the pathogenesis, because larger ones do not lend themselves well to such study.

Michelson and Lynch have suggested a probable relationship of amyloid and Bence-Jones protein in cases of systematized amyloidosis. No such assumption is tenable for the localized forms, and no rational explanation of the cause of the development of local amyloid lesions in the skin can be offered. The absence of elastic tissue in both cases in the subpapillary region of the skin in the near vicinity of amyloid infil-

11. Lindwurm: Hypertrophie und Ulceration der Haut mit amyloider Degeneration, Ztschr. f. rat. Med. **14**:257, 1862.

trates indicates that a slight local change in the skin may have preceded the deposit of amyloid. Freudenthal found similar conditions in some of his cases.

Senile amyloidosis is undoubtedly secondary to local damage to the tissue. Preceding change in the tissue may be present in other cases of localized amyloidosis, as suggested by the cases reported by Sannicandro (senile Italian peasants), Wedroff (dermatosis due to sensitivity to light, pernio), Juliusberg [12] (prurigo Hebra), Kenedy [13] (acrodermatitis chronica atrophicans) and probably others. However, the findings here reported and the work of Maschkilleisson and others seem to indicate that the deposit of amyloid is primary in the skin, though the real cause is still unknown.

Red staining of deposits of amyloid with methyl violet is the most diagnostic reaction of amyloid and was exceedingly clearcut in both cases reported here. Methyl violet is best used in low concentration (from 0.1 to 0.01 per cent) rather than in the strength recommended (1 per cent) in most textbooks on pathology. The 1 per cent dilution stains too rapidly and heavily, masks many of the pathologic features and does not allow microscopic control during staining. Paraffin sections, stained and mounted in glycerin, are very satisfactory for study. Wright's stain, while not specific, allows better study of the morphology of the deposits of amyloid.

The selective affinity of amyloid for congo red was developed by Bennhold into an accurate diagnostic test for generalized amyloidosis, but it has been repeatedly negative in localized amyloidosis of the skin when done by Freudenthal, Maschkilleisson, Sannicandro and others. In both cases it was also negative, and attempts to stain the deposits of amyloid in the first case by repeated intravenous injections of congo red were also without results. But surprising effects occurred in the first case following the injection of 1 cc. of 1.5 per cent solution of congo red just subcutaneously in the vicinity of amyloid lesions. At first there was a diffuse staining of the skin and amyloid lesions, but after twenty-four hours the diffuse stain faded, and the amyloid papules to a distance of 10 cm. from the injection retained a rose-red color which persisted for months. Pinpoint-sized red lesions, the sites of previously invisible deposits of amyloid, became visible after this procedure, indicating the small size of the earliest amyloid lesion in the skin. Examination of unstained frozen sections from the red-stained amyloid papules revealed that the congo red was present in appreciable amounts in the amyloid infiltrate. The color was proved to be due

12. Juliusberg, F.: Zur Kenntnis der Amyloidose der Haut, Dermat. Ztschr. **39**:153, 1923.

13. Kenedy, D.: Ueber herdförmige Amyloidentartung bei einem Falle von Dermatitis atrophicans diffusa, Arch. f. Dermat. u. Syph. **136**:245, 1921.

to congo red by acidifying the unstained sections and obtaining a blue color, and the infiltrate was shown to be amyloid by the specific staining with methyl violet.

Through the courtesy of Dr. Brunsting [14] I was able to try this reaction in a case of systematized amyloidosis and obtained identical results, the amyloid papules in the skin being stained red over an area more than 8 cm. in diameter. The subcutaneous procedure was without result in the second case, but an intracutaneous injection of 0.1 cc. of congo red in five places resulted in a diffuse staining of the skin, which lasted forty-eight hours, and a light pink staining of the amyloid nodules, which was still present ten days later but was not nearly as marked as in the two cases reported. Subcutaneous injections were given to five control patients and intracutaneous injections to two, with negative results. The condition in three of the cases was lichen planus, and in four, lichen simplex chronicus of the legs; both conditions bore some clinical resemblance to localized amyloidosis. Biopsy was done in three of these cases as an added control. This local staining of cutaneous amyloid by congo red may prove to be a valuable and specific diagnostic procedure.

RÉSUMÉ AND CONCLUSIONS

Two cases of localized (lichen) amyloidosis are reported. The first was of twenty-three years' duration in a man aged 53, with deposits of amyloid in the skin of the legs. Posteriorly, the eruption consisted of discrete, slightly scaling, firm, brown papules, varying in size from that of a pinpoint to 3 mm. in diameter. Anteriorly, over the tibias, the papules had coalesced into infiltrated plaques resembling those seen in cases of lichen simplex chronicus. The second case was that of a man aged 55, and was of several months' duration. The location of the lesions was almost identical with those in case 1, but the eruption consisted only of papules almost the color of normal skin and not more than 1 mm. in diameter.

The reaction to the intravenous congo red test for amyloid (Bennhold) was normal in both cases. Following subcutaneous injection of the same dye in the first case, the amyloid lesions took a rose-red color which was retained for months. On the basis of a similar result in a case of systematized amyloidosis with cutaneous lesions and seven negative results in cases of disorders simulating localized amyloidosis, this is proposed as a specific diagnostic test for cutaneous amyloidosis, though in the second case it was necessary to inject the dye intracutaneously to stain the amyloid papules.

14. Brunsting, L. A.: Personal communication to the author on a case of systematized skin and muscle amyloidosis, a report of which will be published.

In both cases, as is true of most reported cases, the deposit of amyloid in the skin is felt to be a primary and not a secondary process.

Evidence was seen in both cases to indicate that the amyloid was deposited in small preformed bodies (cells) about the capillaries of the papillae rather than in the tissue spaces. By peripheral growth fairly large homogeneous subepidermal masses of amyloid were formed in the first case.

While it is felt that localized amyloidosis in these cases was primary in the skin, no theory of the etiology can be offered.

The long duration in the first case and the failure to find any evidence of other disease in the more recently developed second case indicate the benignity of localized amyloidosis of the lichenoid type.

ABSTRACT OF DISCUSSION

Dr. Arthur J. Markley, Denver: My associates and I have had under observation for the past three months a patient with a condition which is apparently a counterpart of that in the cases which Dr. Nomland has just described. The patient, a man aged 47, is in a tuberculosis sanatorium in Denver. About the middle of last February a widespread papular eruption developed which involved both legs between the knees and the ankles. The lesions were capped by sharply defined and almost verrucous scales. There was a resemblance to the lesion seen in cases of lichen planus and lichen simplex chronica, although the details of those disorders were lacking. Biopsy sections, however, gave the characteristic reaction with methyl violet and more particularly with iodine. We did not employ the intravenous injection of congo red since the patient is tuberculous, and we did not know whether it would be advisable; also it has been stated that this method is without effect on cutaneous amyloid. We are able to confirm Dr. Nomland's findings regarding staining of the lesions after intracutaneous injection of congo red. In sections of one such lesion stained with congo red subcutaneously the amyloid substance was a bright pink or red. In the fresh section cut and dipped in iodine the amyloid nodule is readily seen with the naked eye. We feel gratified in being able to add what we believe to be an additional American case of localized cutaneous amyloidosis.

Dr. J. Frank Fraser, New York: I recall one case in which amyloidosis was limited to the tongue, and the initial lesions and their method of extension were almost similar to those described by Dr. Nomland in the skin. The diagnosis in this case was established by biopsy and staining.

Dr. M. H. Ebert, Chicago: I have had an opportunity to follow this work of Dr. Nomland's and am certain that in the past all the members have seen cases of localized amyloidosis (lichen amyloidosis) and have mistaken them for cases of lichen simplex chronica. I think that Dr. Nomland's method of subcutaneous or intradermal staining with congo red is a definite contribution. It is simple and easy to use, and the results are very definite.

In support of Dr. Nomland's thesis that the amyloid is deposited intracellularly, I should like to cite the work of Smetanka in 1927. He was of the impression that in cases of general amyloidosis the amyloid is deposited in the reticulo-endothelial cells. In his work he blocked the reticulo-endothelial cells and found that the deposit of amyloid was very much delayed in comparison with the find-

ings in his control animals. I think this substantiates in a way Dr. Nomland's contention.

Dr. Ruben Nomland, Chicago: I am glad that Dr. Markley was able to utilize the congo red as a feature of diagnosis, as it looks as if it might be valuable, although four cases are scarcely enough from which to draw any conclusions.

I might say that in general if one thinks of amyloidosis, especially in intensely pruritic disorders of the legs, one may become sensitized to it. That is, in any case of pruritus of the legs in which there are chronic tendencies one needs to rule out a diagnosis of amyloidosis. I do not wish to leave the impression that localized amyloidosis is always of the lichenoid type, for as the number of reports of cases increases other types of localized amyloidosis are appearing rather frequently. The iodine reaction is classic for amyloid tissue wherever it is found. However, it was negative in my two cases and has been negative in most cases reported in the literature. If I remember correctly, eight of Freudenthal's patients gave a negative reaction to the iodine test. Wells stated that methyl violet is the most characteristic stain for amyloid.

Dr. Fraser mentioned localized amyloidosis of the tongue. Cases of localized amyloidosis of the tongue, bladder, eye and other organs have been reported in the literature.

DERMATITIS NODULARIS NECROTICA

REPORT OF A CASE WITH AUTOPSY OBSERVATIONS

WERNER W. DUEMLING, M.D.
FORT WAYNE, IND.

Since Werther's [1] first description of an unusual cutaneous disorder under the title "Dermatitis Nodularis Necrotica" in 1910, there have appeared in the literature reports of thirty additional cases. All except the last four were reviewed by me in 1929, at which time a case was added.[2] At that time there seemed to be considerable confusion as to the etiology and proper classification of these cases. In the majority there was evidence of tuberculosis, either histologically in the cutaneous lesions or otherwise clinically in the patients. In nine cases there was no evidence of tuberculosis. It was my impression that in the latter group the disorder may have had its basis in a septic or embolic process. This idea was based on the clinical course and histologic observations in my case, as well as on the constant finding of a streptococcus in the lesions and the lymph glands. That the clinical picture may be on other than a tuberculous basis was first maintained by Klingmüller,[3] who regarded his case as one of a purely inflammatory dermatosis of hematogenous origin.

Since the last review of the literature, Eichenlaub [4] reported the case of a man, aged 32, who for six years had recurrent crops of lesions on the legs, arms and buttocks. The description of the lesions coincided with that of dermatitis nodularis necrotica, except for the hemorrhage. There was no evidence of tuberculosis, and treatment was ineffective. The eruption persisted at the time the patient left the hospital.

Fischl,[5] in a critical study of dermatitis nodularis necrotica, stated that in all the cases reported to date the clinical picture was that of papulonecrotic tuberculid and should be accepted as such even in the face of negative histologic observations. He suggested discontinuation of the use of the term dermatitis nodularis necrotica, as the fact could

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Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, Va., May 2, 1935.

1. Werther: Dermatitis Nodularis Necrotica, Ikonographia, 1910, p. 213.

2. Duemling, W. W.: Dermatitis Nodularis Necrotica, Arch. Dermat. & Syph. **21**:229 (Feb.) 1930.

3. Klingmüller: Arch. f. Dermat. u. Syph. **110**:419, 1911.

4. Eichenlaub, F. J.: Dermatitis Nodularis Necrotica, Arch. Dermat. & Syph. **22**:681 (Oct.) 1930.

5. Fischl, F.: Dermat. Wchnschr. **92**:50 (Jan. 10) 1931.

be accepted with certainty that in all cases reported under this title the condition was a clinical variant of the papulonecrotic tuberculid.

In Poor's [6] case the lesions were polymorphous and involved the trunk, extremities and mucous membranes. Vesicles filled with blood, crusted ulcers and scars were the outstanding features of the eruption. Poor suggested the etiologic and descriptive name tuberculosis nodosa hemorrhagica, differentiating the lesions quantitatively from the papulonecrotic type of tuberculosis and stressing the outstanding feature of the picture, that of hemorrhage.

Gougerot [7] reported briefly on the etiology, pathology and prognosis of dermatitis nodularis. He cited not only his own experience but those in collaboration with his associates. It was his impression that there exist varying degrees and transition forms of this condition. The mildest is characterized by small nonnecrotic nodules, erythematous papules and some purpuric elements. The maximum degree is characterized by large nodules, which rapidly become necrotic, ulcerate and are covered with black crusts. The reaction is intense both in the individual lesions and in the extent of the eruption.

In the cases reported by Hallopeau,[8] Balzer and Milian,[9] Du Castel [10] and Milian [11] the condition was regarded as in the transitional form by Gougerot, standing midway between the mild and the severe grade, but on a tuberculous basis. The cases are examples of the fact that "the tuberculids are a defense reaction in a partially immunized sensitive person."

In their comparative studies Gougerot and his associates called attention to the fact that numerous organisms, notably the tubercle bacillus, pyogenic cocci, Hansen's bacillus, the gonococcus, the spirochete and fungi may provoke a multiplicity of cutaneous pictures. An analogous situation occurs in dermatitis nodularis necrotica, in which the etiologic agent may be the tubercle bacillus, the streptococcus or the staphylococcus. It may be true, as Gougerot maintained, that the defensive reaction is increased and is more effective in direct proportion to the intensity of the cutaneous eruption. The prognosis, therefore, is better in those cases in which the lesions are more numerous and severe, progressing to ulceration and crusting rapidly. This, however, has not been true in my cases.

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6. Poor, F.: Arch. f. Dermat. u. Syph. **169**:4, 1934.

7. Gougerot: Bull. Soc. franç. de dermat. et syph. **39**:1618, 1932.

8. Hallopeau: Ann. de dermat. et syph. **4**:35, 1903.

9. Balzer and Milian: Bull. Soc. franç. de dermat. et syph. **21**:79, 1910.

10. Du Castel: Ann. de dermat. et syph. **7**:724, 1896; **10**:141, 1899; **2**:959, 1901.

11. Milian, G.: Paris méd. **1**:75 (Jan. 21) 1928.

As has been stated before, reports of two types of cases have found their way into the literature under the title dermatitis nodularis necrotica. The etiology of those in which there is definite evidence of tuberculosis is undisputed, and the lesions can properly be classified as papulonecrotic tuberculids. In the other group, in which tuberculosis can be definitely excluded, no reports of autopsy observations have appeared until now. Since the etiology of this group is still debatable, it was deemed worth while to report the following case, which terminated fatally.

REPORT OF CASE

History.—K. R., aged 22, a worker in an automobile factory, enjoyed good health until nine months before he was examined, when he sustained a trivial injury to the right ankle. A blood blister developed at the site, which healed in due course. Similar lesions, however, made their appearance on the extensor surfaces of the elbows and then on the buttocks, knees and ankles (fig. 1). These came in successive crops and were asymptomatic. More recently vesicular lesions had been noted, and there had been a tendency to formation of pus, with ulceration, and healing with scarring. In addition, during the past three months the patient had noted blood-streaked sputum occasionally.

Examination.—The patient was fairly well nourished and somewhat pale but did not appear to be acutely ill. The scalp and the pinna of the left ear presented several lesions similar to those on the skin. Examination of the mouth revealed marked pyorrhea and several carious teeth. There was generalized lymphadenitis, including both epitrochlear glands, the glands varying in size up to that of a lima bean. The spleen and liver were not palpable, and the remainder of the general examination gave negative results. The skin presented an eruption which showed a special predilection for the elbows, back of the hands, knees, legs and ankles. There were also a few lesions on the glans penis, the scalp and the left ear. For the most part the lesions consisted of hemorrhagic papules and nodules, varying in size from that of a pinhead to that of a cherry. In most of them the blood was dried, and the overlying epidermis was exfoliating. Some were crusted over with a brownish-black crust, and a few contained an admixture of pus. Involuting lesions were present on the palms and soles. On the buttocks, where the eruption was most profuse, there remained many reddish and brownish-red hyperpigmented macules. Vesicles which had been present for several days had involuted without a trace. The abdomen, chest and back were strikingly free from lesions. The impression at the time of the first examination was that of severe erythema multiforme, such as one sees in cases of sepsis.

The patient was hospitalized for further study and treatment. He was given colloidal baths, and a paste of sulphonated bitumen was used. He also received injections of iron cacodylate every other day. In ten days all the lesions except about a half-dozen on the ankles had involuted, and the patient was permitted to leave the hospital, after being instructed to take solution of potassium arsenite. He remained free from lesions for almost a month, when a new crop of vesicular and vesicopustular lesions appeared on the buttocks and a few nodular lesions on the elbows and knees. These appeared following the extraction of three teeth.

Almost five months later the patient returned to the hospital, stating that for the past three months he had had considerable pain in the chest and frequently there was blood-streaked sputum. The eruption continued to appear in successive

crops and to involute. At this time lesions were present on the knuckles, the knees and the ankles (fig. 2), and considerable brownish hyperpigmentation and scarring remained where the old lesions had involuted. The temperature was 100.2 F., and the pulse rate was 112; the patient looked pale and had lost 34 pounds (15.4 Kg.). He remained in the hospital thirty-six days without definite improvement and finally left against advice.

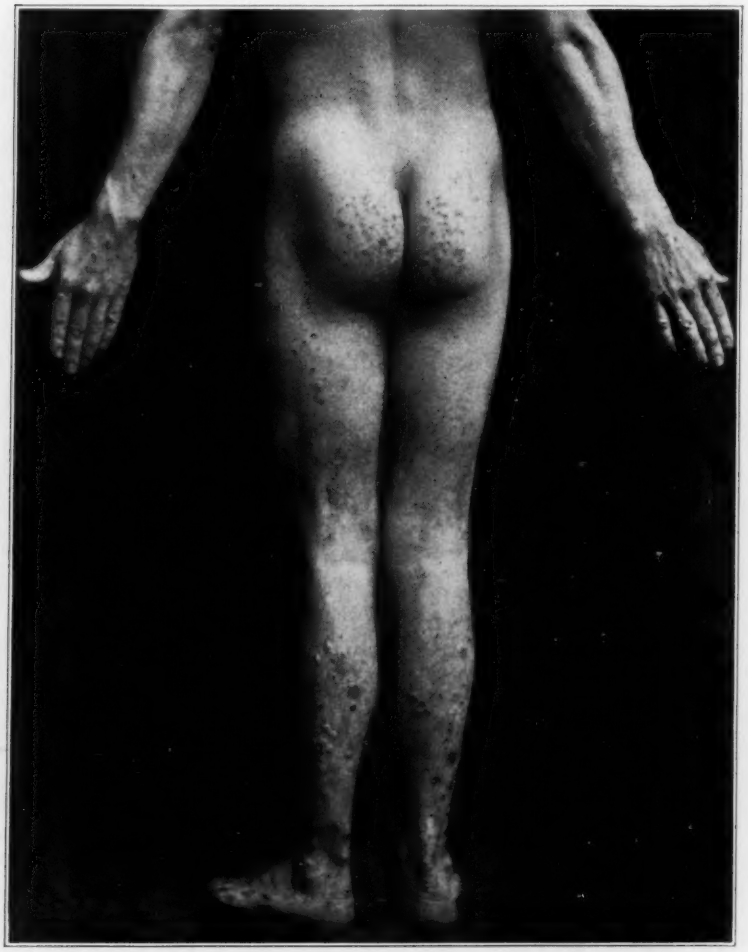

Fig. 1.—Extent of the eruption and sites of predilection.

Laboratory Data.—The Kahn and Wassermann reactions and cultures of the blood were repeatedly negative. When the patient was first seen, examination of the blood revealed: hemoglobin content, 90 per cent; erythrocytes, 5,496,000, and leukocytes, 15,200, with polymorphonuclears 78 per cent and small lymphocytes 22 per cent. Examination of the urine gave negative results. From time to time the blood picture varied, and the urine occasionally showed traces of

albumin. During the last month of hospitalization the differential count showed polymorphonuclears 89 per cent, eosinophils 1 per cent, small monocytes 9 per cent and large monocytes 1 per cent. There was marked variation in the size and shape of the red cells. Examination of the stool revealed blood and Ascaris lumbricoides. The values for sugar and urea in the blood were within normal limits. Examinations of the sputum failed repeatedly to yield tubercle bacilli, and the reaction both to human and to bovine tuberculin was negative. Roentgenograms of the chest revealed fairly dense mottling in the lower lobe of the left lung and some fibrosis in the right lung. This picture changed on reexamination, but at no time was there evidence of tuberculosis. Cultures of the lesions yielded

Fig. 2.—Nodular, hemorrhagic and ulcerating lesions on the knuckles and knees.

only staphylococci, and smears from the lesions and the ulcer in the throat failed to yield tubercle bacilli and fungi.

Soon after the patient left the hospital, an ulcerative lesion appeared on the right tonsil, and his general condition rapidly became worse. He returned to the hospital three months after the last admission and at that time presented an eruption which was generalized and made up of three types (fig. 3). In areas where previous lesions had involuted there remained light and dark brown pigmentation. There was both atrophic and hypertrophic scarring, the end-result of lesions which had ulcerated. Scattered over the trunk and extremities were numerous papules and vesicles varying in size from that of a pinhead to that of

a pea. Many of the vesicular lesions were arranged in arcuate and annular figures, those on the chest presenting stippled hemorrhage. On the elbows, the knees, the dorsa of the hands and the buttocks were nodules averaging in size that of a lima bean, some showing central softening and necrosis. In addition, general examination revealed moderate anemia, and the spleen was easily palpable. The patient remained in the hospital until his death, about one month later. The last weeks of his illness were stormy, and the temperature was of the septic type, going as high as 103.6 F. Crops of vesicular, hemorrhagic and papular lesions appeared and involuted, only to appear again. Some of the vesicles contained clear fluid, others an admixture of blood. They involuted by desiccation and exfoliation (fig. 4). The nodular lesions, however, persisted. The entire right leg became swollen and painful, and the patient complained of pain in the chest. He became gradually weaker and died one month from the date of his last admission to the hospital. Permission for an autopsy was obtained.

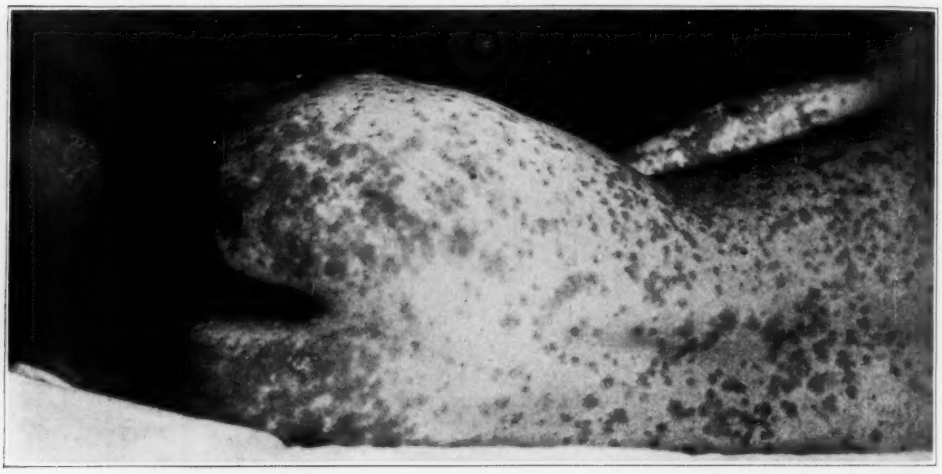

Fig. 3.—Pigmentation, atrophic and hypertrophic scarring, papules and papulovesicles, with stippled hemorrhage.

Autopsy Observations.—The organs of chief pathologic interest were the lungs and the heart. The spleen showed marked chronic passive congestion, with lymphoid exhaustion. The liver and kidneys also showed chronic passive congestion and slight cloudy swelling.

The left lung was adherent to the posterior wall of the chest. There were several areas of consolidation, covered with a thick plastic exudate. The pleural cavity contained about 500 cc. of purulent fluid. The right lung was adherent to the wall of the chest posteriorly and laterally from the apex to the base and also to the diaphragm. It was partially collapsed, and crepitation was very slight. There was no free fluid in the right pleural cavity, but some thick plastic exudate covered the base posteriorly. Microscopic examination revealed multiple hemorrhagic infarcts, with early pyogenic infection and formation of abscesses. There was marked pigmentation with hemosiderin. There were organizing fibrinous pleurisy and localized organizing purulent pneumonia. No tubercles were observed.

Grossly the heart was enlarged, and the pericardial sac contained 55 cc. of clear pale yellow fluid. The mitral valve was studded with large, irregular, rather soft and friable vegetations. These extended from the free edges of both cusps, which showed some destruction almost to the base. In some places portions of the vegetations appeared to have been freshly broken away. Microscopic examination revealed numerous bacteria and a marked inflammatory reaction. The bacteria were Staphylococcus aureus.

The pathologic diagnosis was subacute mitral endocarditis with multiple embolic infarctions and marked chronic passive congestion of the lung with infected hemorrhagic infarcts, together with secondary pleurisy. The entire picture was

Fig. 4.—Hemorrhagic papulovesicles healing by desiccation and exfoliation.

that of mitral endocarditis, which also explained the thrombophlebitis of the right leg. The lesions in the skin may have been small embolic infarctions.

Histologic Examination.—Various types of lesions were excised for study. A lymph gland also examined presented only chronic hyperplastic lymphadenitis with acute exacerbation.

In one section both hemorrhagic papules and vesicopustules could be seen (fig. 5). Both lesions occupied the upper portion of the cutis. In the upper portion of the corium there were dilatation of the blood vessels, hemorrhage and a diffuse infiltration, which in the former consisted chiefly of lymphocytes and in the latter of polymorphonuclear leukocytes.

The nodular lesions presented the picture of a massive infiltrate extending from the papillary layer to the coil glands (fig. 6). Scattered throughout, but particularly just beneath the papillae, which had been flattened, considerable free hemorrhage was seen (fig. 7). The cells of the infiltrate were for the most part

polymorphonuclear leukocytes. In this lesion as well as in the others there were vascular dilatation and perivascular infiltration.

From the histologic standpoint, the picture was that of an acute purulent infection involving both the corium and the cutis. The more superficial lesions evolved more rapidly and healed by desiccation and exfoliation. The nodular lesions were slower in evolution, developed into ulcers and finally healed with scar formation.

A septic or embolic process might well account for these changes, which is further supported by the septic type of temperature, the anemia, the enlarged spleen and the unmistakable evidence of embolism in the right leg and the lung.

Fig. 5.—Photomicrograph showing a papule and a vesicopustule. Note the diffuse lymphocytic and polymorphonuclear leukocytic infiltrate high up in the corium.

Summary.—A man aged 22 presented an acutely exacerbating eruption, which at the outset was compatible with a diagnosis of severe erythema multiforme. The condition lasted for one and one-half years, finally terminating fatally. The lesions were polymorphous, appearing as hemorrhagic papules, vesicles and nodules and later developing into necrotic ulcers. The ulcers occurred chiefly on the elbows, the dorsa of the hands and fingers, the knees and the ankles. During the last weeks of the illness the temperature was distinctly of the septic type, and there was definite evidence of embolism in the lungs and the right leg. Postmortem examination revealed bacterial endocarditis involving the mitral valve and infected hemorrhagic infarcts in the lungs.

Fig. 6.—Photomicrograph of a nodular lesion, showing a massive infiltrate extending from the papillary layer to the coil glands.

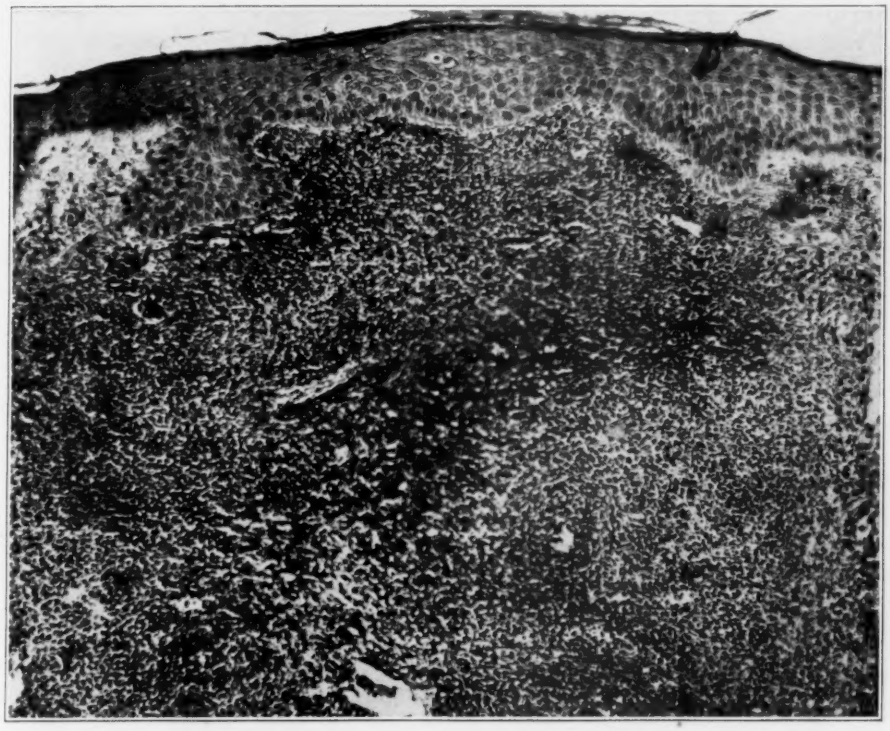

Fig. 7.—Photomicrograph (high power) of a nodular lesion, showing flattening of the interpapillary tufts and considerable free hemorrhage beneath the cutis.

SUMMARY

A case of dermatitis nodularis necrotica with autopsy observations is reported.

The cutaneous picture began as a polymorphous erythema, with the lesions terminating as necrotic ulcers which were evidently embolic.

The cutaneous lesions are readily explained as the result of septic emboli from a subacute mitral endocarditis.

Lesions analogous to those in the skin were present in the lungs.

Dermatitis nodularis necrotica may be regarded as a septic form of erythema multiforme, in some cases caused by tubercle bacilli and in others by septicopyogenic organisms.

ABSTRACT OF DISCUSSION

DR. A. W. STILLIANS, Chicago: I have been interested in this condition for many years, ever since the case at the Cook County Hospital many years ago in which Dr. Fred Harris diagnosed the condition. We were unable to study that case successfully because of difficulty in handling the patient. Dermatitis nodularis necrotica should be considered in cases of bullae filled with blood. That was the impressive feature of Dr. Harris' case.

DR. FRED WISE, New York: I wish to ask if it is possible to exclude absolutely a tuberculous etiology, in spite of all the negative results Dr. Duemling mentioned in this brief presentation.

DR. W. W. DUEMLING, Fort Wayne, Ind.: The credit for reporting the original case of this type in the English literature should go to Dr. Fred Harris of Chicago. I saw the photographs of that case, and, as Dr. Stillians stated, Dr. Harris and his associates were not able to study the case thoroughly.

In reply to Dr. Wise, I would say that the steps taken to exclude a diagnosis of tuberculosis in this case, as well as in the other, were by cultures, smears, rather thorough roentgenographic studies, tests for reaction to tuberculin and inoculations of guinea-pigs. These results were negative, as in several other cases in the literature. Also, no gross or microscopic evidence of tuberculosis was noted at autopsy.

GENERALIZED LENTIGO

ITS RELATION TO SYSTEMIC NONELEVATED NEVI

ERWIN P. ZEISLER, M.D.
AND
S. WILLIAM BECKER, M.D.
CHICAGO

The subject of lentigo has received scant attention in the American literature, and the term has usually been employed synonymously with "ephelis" or "freckle." Freckles are due to a prenatal concentration of melanoblasts, are light brown and are usually more prominent on exposed surfaces, especially following exposure to actinic rays. Dark brown macules on covered parts of the body, differing from freckles on microscopic examination, must be considered a distinct clinical entity. Unless modern staining methods for the study of pigment activity are employed, particularly Bloch's dopa reaction, Masson's trichrome stains and the silver method, histologic changes can easily be misinterpreted, and confusion in diagnosis and classification may result. We believe that the following case of a condition which we have labeled "generalized lentigo" presents sufficient features of interest to warrant a detailed report.

REPORT OF A CASE

History.—Miss V. M., aged 24, from Moberly, Mo., was first seen in July 1929 and again in February 1934, when she was presented before the Chicago Dermatological Society. The patient gave a history of having had a profuse eruption of brown and black freckle-like spots since birth (or "as long as she could remember"). The spots had gradually increased in number up to the age of puberty, but in recent years she had not noticed much change in their size or number. They did not seem to be worse during the summer months and did not fade in the winter. When exposed to the sun, the skin of her face became tanned. Rubbing or stroking the skin provoked itching, and "blotches" appeared which lasted a short time. No other member of the family was similarly affected. Both parents were living and well. With the exception of the usual diseases of childhood, she had never been ill, and she considered herself healthy in every other respect. Menstruation began at the age of 16 and had been normal since then. There had been no ocular disturbances.

Physical Examination.—The patient presented a remarkable generalized freckle-like eruption of the covered parts of the body. With the exception of the face the entire body was sprinkled with innumerable brown and brownish-black flat macules from 1 to 5 mm. in diameter. These were most numerous on

Read at the Fifty-Eighth Annual Meeting of the American Dermatological Association, Inc., White Sulphur Springs, W. Va., May 2, 1935.

From the Section of Dermatology, Department of Medicine, University of Chicago, and the Dermatology Department, Michael Reese Hospital.

the extensor surfaces of the arms, the backs of the hands, the shoulders and the calves. However, even on the back, thighs and abdomen there were numerous darkly pigmented macules, most of them 5 mm. in diameter and a very few 1 cm. in diameter. Even on the palms and soles there were sparse light yellowish-brown macules. On the neck the spots were paler, and the face was entirely free except for some very faint macules and diffuse pigmentation. There were no pigment spots on the lips or mucous membranes. Dermographia could be elicited on any part of the cutaneous surface by stroking or rubbing the skin with a blunt object and was not confined to the lesions. Heat, cold and exposure to ultraviolet radiation did not bring out a dermographic response.

Fig. 1.—Distribution of the freckle-like spots on the arms and chest. Note the absence of lesions on the face.

General physical examination showed nothing significant. The hair was dark and its distribution normal. The facies showed widely set eyes with normal conjunctiva, without pigmentation. There were a high arched palate, irregular teeth and a prominent jaw suggesting a mild pituitary disturbance. The thyroid gland was small, and percussion over the thymic area did not reveal any dulness. There was a pigeon-breast deformity of the chest. Examination of the heart, lungs and abdomen showed normal conditions.

Laboratory Findings.—The urine contained no albumin or sugar. Tests for bile, pyrocatechin bodies and hematoporphyrin revealed none. The blood pressure

was 95 systolic and 65 diastolic. The basal metabolism was minus 6 per cent. The blood count showed: erythrocytes, 4,460,000; leukocytes, 7,150; hemoglobin, 75 per cent; a normal differential count. Chemical examination of the blood revealed: blood sugar, 110 mg.; calcium, 10.2 mg., and uric acid, 2.4 mg., per hundred cubic centimeters. Roentgenologic studies and skin tests were not carried out.

The diagnosis on presentation was generalized lentigo, a variety of nonelevated systemic nevi.

Histologic Studies.—Biopsies were taken from several of the blacker, deeply pigmented lesions on different parts of the body, and the material was fixed in

Fig. 2.—Distribution of the pigmented lesions on the back, shoulders and dorsal surfaces of the hands and fingers. There were also lighter brown macules on the palms.

Bouin's fluid and sectioned in paraffin. Stains were made with Masson's trichrome stains [1] (hemalum-erythrosin-saffron; iron hematoxylin-acid fuchsin-ponceau de xylidine-aniline blue) which are the best stains known for studying the cellular structure of the skin, the "dopa" reaction for pigment activity and silver brazilin. With Masson's trichrome stains the following was seen: At the end of the section there was no pigment at all. *Cellules claires* were numerous, perhaps

1. Masson, P.: Some Histological Methods: Trichrome Stainings and Their Preliminary Technique, J. Tech. Methods **12**:75, 1929.

more numerous than normal. Toward the center of the section the *cellules claires* became larger and seemed to be more numerous and some of them had become melanoblasts containing pigment. Some of the palisade basal cells were also pigmented, the pigment in the cell tending to be collected on the distal pole of the nucleus. The pigment was present, for the most part, in the fine elongated granules which are found normally, but in some of the melanoblasts the pigment was present in large globules, generally of the same size in any given cell but occasionally varying somewhat in size in the same cell. Some cells contained the fine elongated granules and the large globules, but other cells showed only the

Fig. 3.—Distribution of the pigmented spots on the extremities.

large globules. The palisade basal cells also contained some of these large globules along with fine pigment granules. In the center of the section, representing the most markedly pigmented portion of the lesion, the melanoblasts were increased in number and activity and were occasionally seen in small masses, especially at the tips of the rete processes. Melanoblasts were occasionally seen in the stratum mucosum, being carried to the surface by the normal exfoliating process of the epidermis. The palisade basal cells and the cells of the stratum mucosum were normal except as they had been distorted by pressure of melanoblasts.

A section from another portion of the same lesion presented a somewhat different picture. Throughout the entire section the melanoblasts showed considerable

branching. The palisade basal cells also showed rather marked pigmentation with capping of the nucleus. In this section there was not so much multiplication of the melanoblasts, although there were a few groups at the ends of the rete processes. Here, too, the large globules of pigment were seen in some of the cells. Beneath the most markedly pigmented portion of both sections were many chromatophores filled with melanin arranged as is usually seen in chromatophores, namely, in lumps and clods of irregular size and shape. There was no appreciable change in the dermis.

The dopa reaction was moderately positive in the basal portion of the epidermis. There was little branching of the cells giving the dopa reaction. A positively reacting cell was occasionally seen above the basal layer, suggesting that some

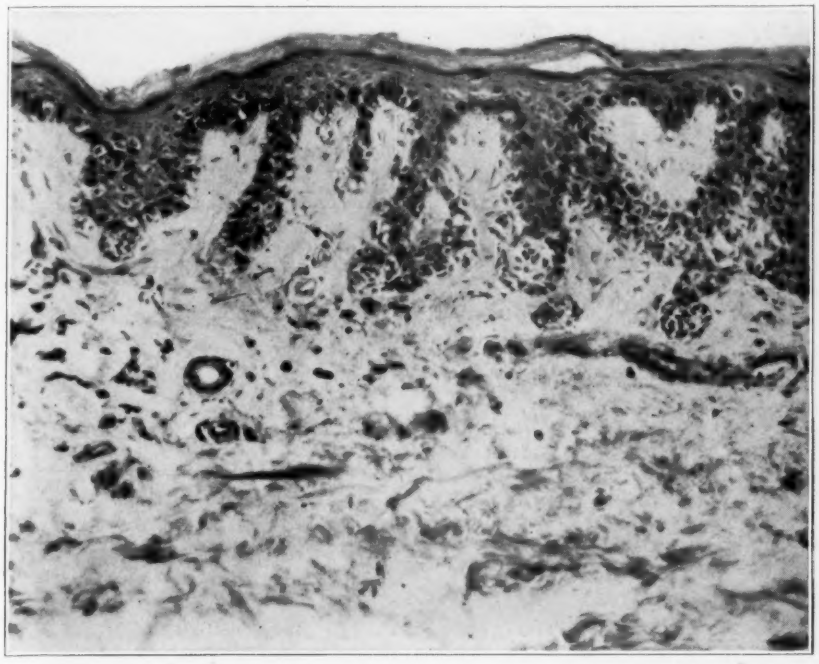

Fig. 4.—Small masses of melanoblasts at the tips of the rete processes, all attached to the epidermis; × 170; hemalum-erythrosin-saffron stain.

of the melanoblasts which were being carried outward to the surface still retained their positivity to the dopa test. The reaction was somewhat difficult to interpret owing to the enormous amount of pigment in the section. The chromatophores in the dermis did not give a positive reaction.

Histologic Interpretation.—The lesions showed marked hyperpigmentation, but the pigmentary process was not particularly active. The presence of dendritic cells in one of the sections was indicative of activity, but they were almost absent from the other sections. The melanoblasts had become increased in number, as was shown by the small masses of these cells along the epidermodermal junction, especially at the tips of the rete processes. They were all attached to the epidermis, and none of them was found in the dermis, as is seen in elevated pigmented

nevi. The actual formation of pigment was altered in that, instead of uniformly sized elongated pigment granules throughout both the melanoblasts and palisade basal cells, many cells contained large globules of varying sizes, usually of the same size in each cell. Some of the palisade basal cells also contained these large globules along with granules of the normal size. It is thought that each pigment granule has a protein base on which melanin is deposited and which governs the size of the granule. If this theory is correct, this mechanism has been altered in these cells to produce large globules of pigment. The hyperpigmentation of the overlying epidermis and the increase of the melanoblasts at the epidermodermal junction, forming small and large groups attached to the epidermis, are a characteristic histologic observation in the simpler nonelevated, smooth, pigmented nevi.

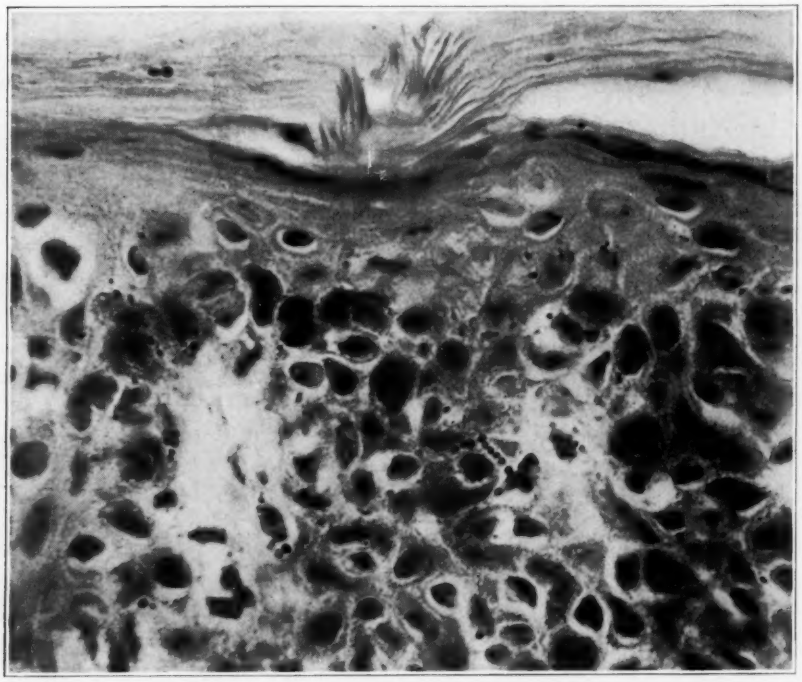

Fig. 5.—Large globules of melanin pigment in the melanoblasts and palisade basal cells; oil immersion lens; × 800; hemalum-erythrosin-saffron stain. Pigment is present in the melanoblasts, for the most part in fine granules. The pigment tends to be collected over the distal pole of the nucleus.

CLASSIFICATION

On the basis of our clinical and histologic observations we feel justified in labeling the process as generalized lentigo and classifying it among the systemic nonelevated nevi or as multiple flat nevi. The French have called these cases *tâches pigmentaires,* and in the German literature they are generally called *lentigines* and classed among the pigmented nevi. When they are widely disseminated, the designation

lentiginosis profusa or *Linsenflecke* is sometimes used and is indicative of an underlying systemic process of unknown nature. In the older literature (Hebra, Newmann) the distinction between ephelides and lentigines was not made, and lentigines were then not classed as nevi. Since Kaposi's time, most recent continental authors, including Darier,[2] Scholtz,[3] Kissmeyer,[4] and others, have placed lentigines among the non-elevated nevi. Siemens [5] includes under the title "Lentigo" both macular pigmented spots and slightly raised pigmented moles or *Schoenheitsflecke*.

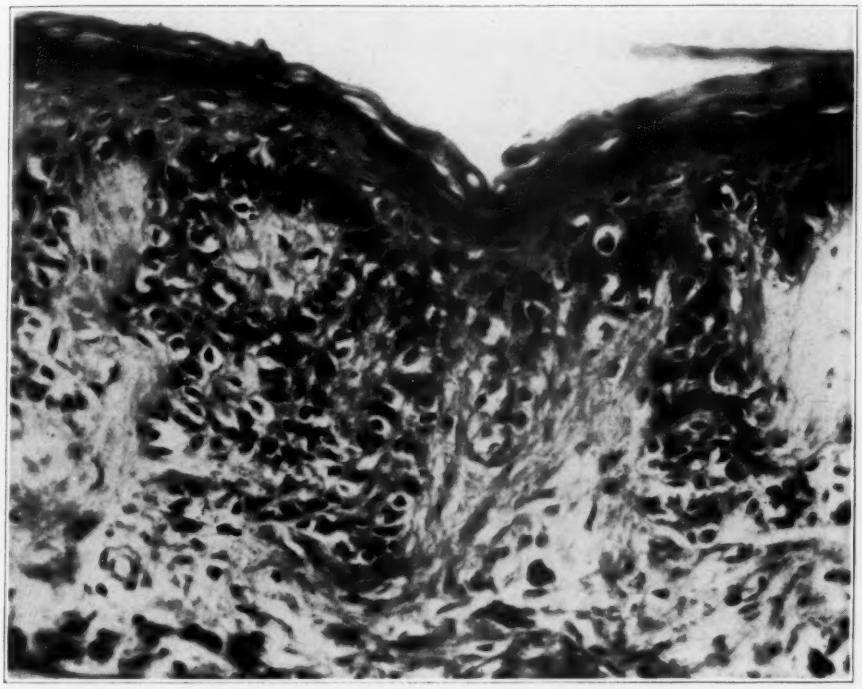

Fig. 6.—The so-called clear cells are larger and more numerous, and some have become melanoblasts containing pigment. Groups of melanoblasts may be noted at the end of the rete processes; × 350; Masson's trichrome stain.

When these lesions were studied microscopically, they were presented as proving the epidermal origin of nevus cells. The nevus cells were

2. Darier, J.: Précis de dermatologie, Paris, Masson & Cie, 1928.

3. Scholtz, W.: Naevi (Klinik), in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1932, vol. 12, pt. 2.

4. Kissmeyer, A.: Etudes sur les naevi pigmentaires de la peau humaine (Melanoblastomes benins), Paris, A. LeGrand, 1927.

5. Siemens, H. W.: Beitrag zur klinischen Kenntnis der Lentigines, Arch. f. Dermat. u. Syph. **152**:373, 1900.

within or attached to the epidermis and were erroneously thought to be derived from palisade basal cells. It remained for Masson [6] to direct attention to the normal presence in the epidermis of unique cells from which nevus cells originate. In order to appreciate these cells it is necessary to employ a good fixative (Bouin's) and to employ appropriate stains (Masson's trichrome stains). By an improved method of testing for the dopa reaction Becker, Praver and Thatcher [7] have advanced further evidence that it is only these cells which give a positive reaction, and not the palisade basal cells, as has previously been supposed. From the

Fig. 7.—Marked pigmentation of the basal layer; many chromatophores filled with melanin; × 170; silver brazilin stain.

scientific point of view some authors (Becker) prefer to reserve the term "lentigo" for the dark brown macules which appear in normal skin in various parts of the body during life and which show pigment activity similar to that following exposure to actinic rays. In this type

6. Masson, P.: Les naevi pigmentaires: tumeurs nerveuses, Ann. d'anat. path. **3**:417 (May); 657 (July) 1926.

7. Becker, S. W.; Praver, L. L., and Thatcher, H. W.: An Improved (Paraffin Section) Method for the Dopa Reaction, Arch. Dermat. & Syph. **31**:190 (Feb.) 1935.

of lentigo there is never an increase in the number of melanoblasts, and the lesions are interpreted as a localized hyperpigmentation of unknown etiology. These lesions are usually not so generalized as in the case being presented and are of significance chiefly as possible forerunners of malignant melanoma. The terminology in this particular field is obviously lacking in uniformity, and it would be impossible to find a definition of lentigo which would meet with universal approval.

Fig. 8.—Moderately positive dopa reaction in the basal portion of the epidermis; enormous amount of pigment in the basal layer; lumps and clods of melanin in the chromatophores; × 190.

COMPARISON OF THE HISTOLOGIC CHANGES WITH THOSE IN OTHER PIGMENTED MACULES

For purposes of comparison, biopsies were made of various pigmented macular lesions and studied with Masson's trichrome stains and by the silver nitrate method. A yellowish-brown ephelis from the shoulder of a markedly freckled red-haired young man showed the pigment distributed irregularly throughout the epidermis and concentrated in caps at the distal poles of the nuclei of the basal cells. This indicated that the pigmentary process had been going on for a long time, and the lack of dendritic cells showed that the process was not particularly active at the time of examination. No pigment was present between

the freckles. The epidermis was otherwise normal throughout. Another brownish macular lesion (postinflammatory melanosis following bites by Cimex lectularius in infancy) was removed from the thigh of a boy, aged 6. Here, too, the pigment was partly in caps, and there were no dendritic cells, showing a lack of pigment activity at the time.

Another small smooth brown lesion of the palm of five months' duration showed localized pigment activity with some dendritic cells and with pigment extending even through the stratum corneum. There was no sign of what might be construed as nevus cells, and the diagnosis was lentigo (localized). Another brown macular lesion from the sole of the foot of a young girl, one which had been growing in size, showed microscopically a pigmented nevus with the picture of a more or less quiescent nevus in the center, but with cellular masses toward the periphery suggesting increased growth. Sections stained by Masson's trichrome stains showed that the nevus cells stained a lighter color, the same color as the *cellules claires* seen occasionally in the basal layer. Under an oil immersion lens, some of the palisade basal cells showed fibrillae, which are never seen in nevus cells.

A comparison of the histologic observations in the aforementioned group of pigmented macular lesions with those found in our case shows the significant absence of the bullet-like pigment granules. We feel that there should be no difficulty in differentiating the type of lentigo which we have described from other pigmented lesions on histologic evidence alone.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of generalized lentigo from other disorders associated with dark freckle-like lesions can be made on the clinical and histopathologic observations. Ordinary ephelides develop at a later age, are lighter in color, are usually most marked on the exposed surfaces and are definitely related to exposure to sunlight. They are never in our experience found on the palms or soles. In exceptional cases, such as that of a patient mentioned by Crocker and the one from whom the control section of an ephelis was removed in the present study, they occur on unexpected parts of the body, particularly on the trunk, thighs and genitalia, and do not fade in cold weather (so-called "cold freckles"). Congenital freckles, when examined in the light of modern studies of pigmentation, will usually be found to belong to the smooth nevi.

The differentiation of generalized lentigo from xeroderma pigmentosum should cause difficulty only in exceptional cases. Ordinarily the lentiginous lesions in this disease are most profuse on the face, neck and arms and are associated with photophobia and other ocular changes. The absence of telangiectases, atrophic spots and keratoses after many

years' duration is an important differential point. The hyperpigmented spots in xeroderma pigmentosum, which are characteristic of the second stage of the disease and have led to the designation of the process as melanosis lenticularis progressiva and lentigo melanique (Balzer), may closely resemble freckles or deeply pigmented nevi, but the course of the disease is entirely different. Typical cases are marked by the development of malignancy early in life.

The first case of xeroderma pigmentosum to be studied by modern methods including the study of pigment activity was that of Becker, Pautrier and Woringer.[8] The skin showed marked inflammatory reaction and intermittent hyperpigmentation. The dopa reaction was intermittent and more marked in regions showing the inflammatory reaction. The reaction was positive in melanoblasts and for a short distance in their branches. By the silver method most of the pigment was seen to be in the basal layer of the epidermis and the adjacent layers. In the markedly pigmented regions numerous dendritic melanoblasts were seen. In preparations stained by Masson's trichrome stain (iron hematoxylin-acid fuchsin-ponceau de xylidine-aniline blue), the melanoblasts could be readily recognized even when they contained little pigment. The dermal chromatophores were also markedly pigmented. The process was interpreted as primarily an inflammatory one with secondary hyperpigmentation. This histologic picture presents little similarity to that of the case being presented.

A group of cases characterized by melanotic macules and papules have been interpreted as representing a mild or abortive form of xeroderma pigmentosum. They present several differences, which make the diagnoses questionable, although the hyperpigmentary process has never been accurately evaluated, and ultimate disposition of them has not been made. Such a case was reported by Montgomery and Reuter.[9]

The patient was a woman, aged 32. The eruption had its onset when she was 17, and consisted of brownish-black macules on the neck and forearms from a few millimeters to 1 or 2 cm. in diameter and of irregular shape Erythematous macules containing telangiectases were present on the neck. Atrophy was questionable. A few pigmented macules were present on the lower extremities, chiefly on the thighs. Over the abdomen and thorax were symmetrical small flesh-colored papules 0.25 to 0.5 cm. in diameter. The histologic changes were relative and absolute hyperkeratosis; varying degrees of atrophy of the prickle cell layer, especially over the papillary bodies; irregular proliferation and prolongation of the rete ridges; intracellular edema of the cells of the epidermis with pyknosis and karyorrhexis resulting therefrom; edema of the papillary bodies and upper

8. Becker, S. W.; Pautrier, L. M., and Woringer, F.: A Case of Xeroderma Pigmentosum, Arch. Dermat. & Syph. **25**:915 (May) 1932.

9. Montgomery, H., and Reuter, M. J.: Xeroderma Pigmentosum: Report of a Mild Case with Histopathologic Studies, Arch. Dermat. & Syph. **26**:256 (Aug.) 1932.

part of the cutis with resulting narrowing of the rete ridges; some dilatation of the superficial vessels with varying degrees of perivascular infiltrate; spotted melanin pigmentation of the epidermis and upper part of the cutis, and chromatophores laden with pigment. The features distinguishing the picture from that of a typical xeroderma pigmentosum were the lack of parental consanguinity, of inflammatory lesions following exposure to sunlight and of definite clinical atrophy, the location of pigmented and many nonpigmented lesions on covered surfaces, the absence of malignancy and the lack of histologic evidences of typical xeroderma pigmentosum.

If cases such as the one just cited are to be interpreted as cases of mild xeroderma pigmentosum, it is difficult to see why the skin of the covered portions of the body is involved in the mild form and escapes involvement in the typical severe form. Such cases present clinical similarity to our case of generalized lentigo and to other cases so reported in the literature, but the histologic pictures easily distinguish them.

The condition described by Unna as Seeman's *haut* is also characterized by massive lentigo-like spots on the exposed surfaces but is always associated with scarlike and atrophic areas and later development of keratoses, telangiectases and ulcerating tumors.

The occurrence of dermographia in our patient might easily have led to the erroneous diagnosis of urticaria pigmentosa. However, the dermographism was not confined to the lesions and could be elicited anywhere on the body. Furthermore, the macular lesions of that disease are usually larger and less numerous and often have a lighter yellowish, salmon-colored or xanthelasmoid appearance. Sections of urticaria pigmentosa often contain the characteristic mast cells.

The possibility of Recklinghausen's disease must also be considered, as in that disease pigment spots may precede the development of tumors by many years. The pigmented areas are as a rule much larger, sparser and lighter brown and are usually associated with some typical molluscoid lesions later in the course of the disease. The form and distribution of the lentigines in our case alone rule out Recklinghausen's disease.

The lentiginous lesions occurring in older people that have been described by Dubreuilh as "malignant lentigo of the aged" or "precancerous circumscribed melanosis" usually occur as single or multiple pigmented spots on the face and elsewhere. Previous to that, Hutchinson had shown the tendency of senile freckles to develop into pigmented neoplasms. Since then Darier has classified lentigo maligna under the pigmented nevi. Becker,[10] in his recent study of lentigo maligna, has shown that it is characterized by prominence and branching of the

10. Becker, S. W.: Melanotic Neoplasms of the Skin, Am. J. Cancer **22**:17 (Sept.) 1934.

melanoblasts, indicating increased pigment activity, followed by hyperpigmentation of the palisade basal cells and neoplastic proliferation of melanoblasts, an already malignant process. Shaw [11] has recently reported a case of this kind. There appears to be no relation between the latter type of lentigo and the generalized variety beginning in early life which we have described.

REVIEW OF THE LITERATURE

Reports of cases similar to the one reported here are scattered throughout the literature under various titles but are not common. Most of the recorded cases have been incompletely studied from the modern standpoint of pigment activity. It is possible to place some of them tentatively in other categories. For instance, Darier [12] reported the case of a girl, aged 10, who had a generalized erythematous eruption at the age of 6. Following this eruption, yellowish macules developed, which later became brown to black. Twelve years later they had practically disappeared. This may well have been a case of postinflammatory melanosis. DuBois' [13] patient was a woman, aged 43, with lentiginous lesions on the side of the neck. The microscopic illustrations show the lesions to be melanotic epithelioma (Bloch).

Arzt [14] illustrated a case similar to ours in his article "Allgemeine Dermatologie." Jordan's [15] patient was a girl, aged 9, who had had lesions on the body and extremities since birth. The hands and feet were free. Microscopic examination showed typical pigmented nevi. Almqvist [16] presented two patients, the first, a man, aged 35, who had had numerous brown spots on the shoulders and back since earliest childhood. They appeared also on the hands and face later in childhood but disappeared from the two last mentioned regions. They became more prominent on exposure to sunlight, were hempseed-sized, gray-brown, thick-set and almost confluent on the shoulders and upper part of the back, also on the trunk and extremities. The second case was that of a man, aged 23, who had had brown spots about the axillae and on other regions of the trunk and extremities. They remained

11. Shaw, H. C.: Lentigo Maligna: Report of One Case Treated with Radium Am. J. Cancer **15**:1557, 1931.

12. Darier, J.: La pratique dermatologique, mélanodermies, Paris, Masson & Cie, 1902, vol. 3, p. 467.

13. DuBois, C.: Etude histologique d'un lentigo, Ann. de dermat. et de syph. **5**:385, 1914.

14. Arzt, in Arzt and Zieler: Die Haut- und Geschlechtskrankheiten, Vienna, Urban & Schwarzenberg, 1935, vol. 1, p. 437.

15. Jordan: Lentigo profusa, Dermat. Wchnschr. **73**:883, 1921.

16. Almqvist: Zwei Fälle mit reichlicher Ausbreitung von Lentigo-flecken, "Lentiginose profuse," Zentralbl. f. Haut- u. Geschlechtskr. **22**:320, 1927.

unchanged, and sunshine had no effect on them. Audry [17] reported the case of a girl, aged 13, who had had groups of lentigines for one and one-half years. Michelson's [18] patient was a man, aged 24, who had had a flat pigmented nevus on his back since birth. At the age of 17, many minute brown or black flat moles had developed on the face, arms and legs, with a few scattered over the trunk. Biopsy showed marked pigmentation of the basal cells with a few pigment-bearing cells in the cutis, but no accumulation of nevus cells. Sutton, in discussing the case, called the lesions typical nevi.

Involvement of the mucous membrane in generalized lentigo is uncommon but not unexpected since Becker [19] has shown that this region is normally pigmented. Balzer, Gaucher and Milian [20] reported the case of a woman whose eruption had appeared at the age of 29, following typhoid fever. She had had dermatitis in the involved regions. The lesions were on the hands, arms and neck. The region about the mouth was involved, and lesions were present on the inner surfaces of the lips. More marked involvement of the mucous membrane was reported by Foerster,[21] whose patient, aged 17, had had lesions since the age of 3. They covered not only the entire body, especially the legs, forearms and face, but the buccal mucosa, hard palate, gums and inner surfaces of the lips. The histologic picture was that of a smooth nevus.

Cases of localized unilateral freckle-like pigment spots with a segmentary distribution are also found recorded in the literature, and unquestionably the spots belong to the systematized nevi. A case in point is that of McKelway,[22] in which the patient had unilateral lentigines from the hair line on the neck down to the knees.

The report which Knowles [23] presented before the American Dermatological Association, Inc., in 1911, entitled "Multiple Areas of Pigmentation of Eight Years' Duration Involving Chiefly the Trunk of a

17. Audry, C.: Cas de lentigo infantile profus, Ann. de dermat. et de syph. **4**:343, 1903.

18. Michelson, H. E.: Melanosis Lenticularis of Hutchinson, Arch. Dermat. & Syph. **24**:1117 (Dec.) 1931.

19. Becker, S. W.: Melanin Pigmentation, Arch. Dermat. & Syph. **16**:259 (Sept.) 1927.

20. Balzer; Gaucher and Milian: Lentigo mélanique, Ann. de dermat. et de syph. **8**:1106, 1897.

21. Foerster, A.: Naevi spili der Mundschleimhaut bei Vorhandensein von Naevi spili der Haut in ausgedehnter ungewöhnlicher Form, Dermat. Wchnschr. **83**:1435 (Sept. 25) 1926.

22. McKelway, J. I.: Lentigo: Unilateral Distribution, New York M. J. **80**:197, 1904.

23. Knowles, F. C.: Multiple Areas of Pigmentation of Eight Years' Duration Involving Chiefly the Trunk of a Girl of Twelve: Histological Examination and Review of the Literature, J. Cutan. Dis. **30**:83 (Feb.) 1912.

Girl of Twelve," deals with a different clinical picture. There were multiple pigmented spots on the covered parts of the body, some of which were as large as 3 cm. in diameter. Sections showed no epidermal change except increase of pigment. Nevus cells were absent. Although the lesions were interpreted as giant ephelides, the probability is that the condition was a form of Recklinghausen's disease rather than a congenital pigmentary defect. Nor did the cases of lentiginous lesions cited from the literature by Knowles, such as those of Fox, Sangster, Crocker, Hutchinson or Whitfield, correspond exactly to the one we have described.

Oliver and Finnerud, at the meeting of the Chicago Dermatological Society on April 20, 1928, presented a child, aged 9, with numerous discrete pinhead to pea-sized light brown macules on the trunk. Microscopic examination showed heavy pigmentation limited to the basal layer of the epidermis, and the case was presented as one of generalized lentigo. In the discussion Bloch commented on the fact that the form and distribution of the hyperpigmented brown spots were not typical of Recklinghausen's disease but were more related to ephelides and were usually familial and hereditary. He had seen the disorder in seven members of one family within three generations, and the inheritance followed the mendelian law.

Scholtz [3] included under lentigines two groups of lesions: (*a*) pinhead to lentil-sized yellow-brown or brown-black perfectly smooth spots and (*b*) slightly raised larger moles of a brown to black color, usually rounded, with a smooth velvety surface. Larger café au lait spots are classified as nevi spili. Lentigines are rarely present at birth and usually appear during the first five years of childhood. Kissmeyer,[4] in an examination of two hundred and seventy-five new-born infants found lentigines present in thirty-five, mostly as a single pinhead-sized pigment spot. Between the sixth and tenth years of age he found lentigines in 94 per cent and nevi spili in 13 per cent. After the tenth year there was no further increase in the percentage of lentigines or nevi spili but there was a progressive increase in the number of raised and infiltrated nevi. These figures, according to Kissmeyer, indicate that flat lentigines may develop into raised and even verrucous and molluscoid nevi in later periods of life. Siemens [5] estimated the frequency of lentigines as at least thirty per person. Michel,[24] in Jadassohn's clinic, examined one thousand people of all ages for pigmented nevi and estimated the frequency at ten per person. Siemens showed statistically that there is a constant increase of moles up to the age of 21, both of the smooth and raised variety, and that there is apparent decrease after the age of 21, suggesting a disappearance of part of the nevi.

24. Michel, quoted by Scholtz.[3]

The histologic changes in lentigines have been studied by Cohn, Unna, Kissmeyer, Bloch, Becker and others. According to Unna's school, even the smallest lentigines are characterized by changes entirely within the epidermis, the most conspicuous of which are marked pigmentation chiefly of the basal cells, swelling of the rete cells in circumscribed areas, multiplication of the clear cells and loss of fibrillary structure. Further development around the changed rete cells results in cystlike spheres in which the cells develop into typical nevus cells, which are pushed down or descend into the dermis. In slightly raised lentigines typical nests of nevus cells are found characteristically in the papillary layer.

Since then Masson [6] has revamped an old theory of Soldan and advanced the hypothesis, supported by Ewing and Pautrier, that nevi originate from the sheath of Schwann and that the migration of the clear cells into epidermis results in a nerve type of nevus. Becker [25] has made a careful study of several hundred pigmented nevi and has classified them into cellular and nerve types and a combination of the two. He found in most smooth brown nevi chiefly an increase in the number of melanoblasts at the epidermodermal junction and hyperpigmentation of the epidermis only. A second variety, represented by the case reported here, is characterized by large and small groups of melanoblasts attached to the epidermis and by marked hyperpigmentation. A third variety results from the multiplication of clear cells which press the basal cells to one side and form a globular mass which is often still attached to the epidermis but at times entirely separated in the dermis. The nerve type, on the other hand, contains chiefly structures suggesting the tactile corpuscles of Meissner. Masson suggested tentatively that pigmented nevi be classified as schwannomas.

SUMMARY AND CONCLUSIONS

1. Generalized freckle-like pigmentation in the form of brown and black lentil-sized smooth spots involving the covered parts of the body and associated with dermographism is a rare clinical condition.

2. "Generalized lentigo" is used as a descriptive clinical term. The process should be classified with the systemic nonelevated nevi or as flat pigmented nevi.

3. The characteristic histologic features are the small and large groups of melanoblasts attached to the epidermis at the tips of the rete processes and a tremendous hyperpigmentation of the epidermis.

4. The presence of large globules of melanin pigment in some of the melanoblasts and palisade basal cells is an unusual feature.

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25. Becker, S. W.: Origin and Nature of Pigmented Nevi (Schwannomas), Arch. Dermat. & Syph. **30**:779 (Dec.) 1934.

5. The histologic changes are distinctive and differ from those of other flat pigmented macular lesions.

6. The condition must be differentiated from ephelides, xeroderma pigmentosum, urticaria pigmentosa, Recklinghausen's disease and other disorders in which lentiginous lesions may occur.

7. Greater uniformity in the use of the term "lentigo" is needed, and the term should not be used synonymously with "ephelis." Modern methods for the study of pigment activity are necessary for proper evaluation of the pigmentary process.

Clinical Notes

THE INCIDENCE OF FAVUS IN KENTUCKY

CAREY C. BARRETT, M.D., LEXINGTON, KY.

It is commonly taught in the medical schools of this country and the American dermatologic textbooks state that favus is rarely seen in native-born Americans, and then only in those persons who have had some contact with a person of European birth. According to Stelwagon,[1] "Favus in the United States is relatively uncommon, and with us is seen chiefly in immigrants from Europe." He saw five American-born persons in a total of thirty-six patients during a period of five years. Pusey, in the last edition of his textbook on diseases of the skin, stated that favus is exceedingly rare in native-born Americans. Sutton[2] stated: "Aside from the imported cases, it is exceedingly rare in the United States." Cole,[3] in discussing a case of favus, stated that it is unusual to see it in an American-born person.

In the past four years I have seen three patients with favus who came from widely separated points in eastern Kentucky, and I have been able to collect records of four additional cases, all from eastern Kentucky, from the private records of Dr. E. B. Tauber, of Cincinnati, and of Dr. Robert L. Kelly and Dr. W. U. Rutledge, of Louisville. Dr. Henry F. DeWolf, of Little Rock, Ark., has kindly lent me the report of a case in a patient whom he saw whose home is far back in the Ozark Mountains.

The people of eastern Kentucky have been isolated from the rest of the country by the lack of roads and money. They are mostly of Scotch-Irish descent and have lived by themselves with little communication with the rest of the country for more than one hundred and fifty years. There are few foreign-born persons in this area, and they are only in the few coal mining centers. None of the patients with favus was of foreign birth.

Brief abstracts of the case reports follow:

CASE 1 (E. B. T.).—F. A., a girl aged 15 years, from Pulaski County, had an eruption of the scalp and glabrous skin of more than five years' duration which was typical of favus. No cultures were made, but the hairs and crusts from the scalp showed a typical picture of favus.

CASE 2 (E. B. T.).—A girl, aged 11 years, from Breathitt County, Ky., had an eruption confined to the scalp which was typical of favus. Cultures and direct examination of the hairs were both positive for favus. There was a history of two other members of the family having a similar infection.

CASE 3 (W. U. R.).—A girl aged 12 years, from Garrard County, Ky., on examination showed an infection of the scalp and a widespread involvement of the

1. Stelwagon, Henry W.: Diseases of the Skin, ed. 7, Philadelphia, W. B. Saunders Company, 1914, p. 1098.

2. Sutton, Richard L.: Diseases of the Skin, ed. 5, St. Louis, C. V. Mosby Company, 1923, p. 1114.

3. Cole, H. N.: Favus in an American-Born Child, Arch. Dermat. & Syph. **32**:119 (July) 1935.

skin of the rest of the body which was typical of favus. The cultures at the time of this report were unsatisfactory. No family history was obtainable.

CASE 4 (C. C. B.).—M. S., a youth aged 17, from Perry County, Ky., complained of an eruption on his scalp of about eight years' duration. The clinical diagnosis was favus, which was confirmed by direct examination of the hairs and by cultures. The patient stated that he had two older uncles, with whom he lived, who had a similar infection.

CASES 5 and 6 (C. C. B.).—Two sisters, aged 5 and 7 years, from Morgan County, Ky., had an eruption involving all of the scalp, which was typical of favus. This had been present for about three years in each case. Direct examination of the hairs and cultures were both positive for favus. These children apparently acquired the disease from their father. One brother, aged 10, had a similar disease of the scalp. The mother, who was the only other member of the family, was not affected. The mother knew of no similar cases in the community.

CASE 7 (H. F. DeW.).—G. McM., a girl aged 13 years, who was born in McIntosh County, Okla., and has lived since infancy in the Ozark Mountains, complained chiefly of an eruption on the scalp of unknown duration. Direct examination of the hairs and crusts were positive for favus. No cultures were made.

CASE 8 (R. L. K.).—Dr. Kelly, in a personal communication, told me that he had under treatment three patients with favus who were members of one family from Shelby County, Ky. The diagnosis was confirmed by cultures.

CONCLUSION

These cases seem to indicate that favus is more prevalent in eastern Kentucky than is commonly supposed. It seems probable that the disease was brought to this section by the early settlers, who came from a country where favus is fairly common, and has not spread to other parts of the country and has never been previously recognized because of the isolated character of this Appalachian region.

Minor Notes

ABERRANT SALIVARY GLAND

ERNEST K. STRATTON, M.D., SAN FRANCISCO

E. B., a white woman aged 40, consulted me in October 1933 regarding a recurrent eruption in the midline of the hard palate, at the junction with the soft palate. The patient thought that it had followed a streptococcic infection of the throat fifteen years previously. The eruption appeared to be made up of a group of five discrete matchhead-sized scars, and no further information was obtained by palpation.

The only subjective symptom was the sensation of itching. The patient had been in the hospital a few years previously for tuberculosis of the lungs; otherwise there was nothing of importance in her history.

That the diagnosis was not evident is shown by the fact that she had consulted several other dermatologists as well without receiving an accurate one. Owing to the fact that the patient was unduly alarmed over the possibilities of the condition being malignant, the area was removed by an elliptic excision. The section showed salivary gland tissue.

Aberrant salivary glands have been found in the tonsilar fossa and on the gums; also tumors having the structure of a salivary gland have been found in unusual locations, but no record was discovered of such a tumor having been observed on the hard palate.

USE OF INJECTIONS OF MILK IN CASES OF ALOPECIA AREATA

ANGELOS E. MARCOGLOU, M.D., ATHENS, GREECE

During the past five years I have had occasion to use in seven cases of alopecia areata the treatment with injections of milk recommended by Dr. Miloche Djoritch.[1]

Two of my patients, who were physicians, had many patches of varying size in the bearded region, of from five to six months' duration. The other five had numerous patches on the scalp, which had lasted for more than six months. One of them, an officer of the Greek navy, presented seven round plaques, from 2 to 5 cm. in diameter, and one in the form of a band, 4 cm. in width, extending just above the nape of the neck. This patient was greatly distressed by the disease, which had persisted for more than four years in spite of various treatments.

All of these patients were radically cured with no other treatment than injection of milk. After four or five injections (one each week) for each patch, there was a growth of fine new hairs which gradually grew stronger, coarser and pigmented.

I have modified the technic of Dr. Djoritch a little by giving at each visit from twelve to fifteen intradermal injections of a small amount of milk, just enough to produce one wheal. The injections are made from the border to the center of the affected area. Special attention is given to the parts from which the disease shows signs of spreading (i. e., hairs shaped like an exclamation point).

1. Djoritch, M.: Ann. de dermat. et syph. **1**:372 (April) 1930.

Correspondence

NOTES ON THE NINTH INTERNATIONAL CONGRESS OF DERMATOLOGY

Budapest, Hungary, Sept. 13 to 21, 1935

To the Editor.—The congress was a success, as judged by the large attendance, the great amount of scientific work accomplished and the delightful hospitality extended by the Hungarian physicians.

There were 942 persons present, including 696 physicians, 22 veterinarians (who attended the session on comparative dermatology), 4 nonmedical scientists and 220 wives and children of members. The American delegation included 33 physicians and about an equal number of members of their families.

The congress began on Sunday, September 15 with a formal opening and ended at noon on the following Saturday. In addition to the congress proper, the two preceding days were devoted to meetings of various committees and conferences.

The scientific sessions were held in a large and conveniently located building (Vigado); they consisted of meetings held on five successive mornings, from 9 a. m. to 1 p. m., and on three afternoons, from 3 to 6. In addition, a large clinic was held Saturday morning, and during the week both scientific and commercial exhibits were presented.

Each morning from 9 to 10 o'clock, one or two addresses were given by distinguished members, no other meetings taking place at that time. The other scientific communications consisted of the reading of papers on special topics; the readers of these papers were spoken of as "referees." Other communications were spoken of as independent papers and, as far as possible, were grouped together on the program. Thirty minutes was allotted to an address, fifteen to the reading of a topic and ten to the reading of an independent paper. Discussions were usually held at the end of the session; this may have saved time, though it was not an entirely satisfactory procedure. Few members who heard the first of a group of fifteen papers, for instance, were able or willing to return at the proper time to take part in the discussion.

The extensiveness of the program, which included three hundred and fifty communications, necessitated the simultaneous reading of papers in three different halls. Even one who possessed the hardihood to sit through a single session every morning and afternoon could have heard only one third of the papers. Needless to say, no one even approached such a record. The attendance was also lessened by the difficulty of understanding all (or perhaps more than one) of the official languages (English, French, German and Italian). The individual sessions were in charge of three or four presiding officers representing different nations and languages. Although the United States was not represented by plenary addresses, the appointees being unable to attend, four members of the delegation had the honor of serving as honorary presidents of the congress, while six were delegates from the United States Government and three were delegates from various universities.

Much of the scientific work of the congress has already been recorded in a large presessional volume of transactions, containing one hundred and forty-two communications. All papers with discussions will be published later in another

volume. The publications of the congress at the time of the meeting included the scientific program (parts of which were printed in four languages), the catalog of the exhibits and of cases presented at the clinic and a booklet containing the names and addresses of dermatologists in alphabetical order according to nationality and, as far as possible, according to membership in dermatologic societies. A memorial volume containing biographic sketches and personal reminiscences will also be published later.

Some Americans who are not familiar with the various procedures of international congresses in Europe may be surprised to learn that frequently more than one paper was read by the same person. In fact, several members read four or even five papers. The program included the names of nine members who presented a total of thirty-five papers. This contributed to the great length of the program. Another custom which seems to obtain in certain European congresses is the actual reading of papers of absentee members instead of reading by title as is usually done in this country.

The clinic for patients with cutaneous diseases, which was held in the wards of the university hospital on the last day of the congress, was well attended by both physicians and patients. Among the 140 cases demonstrated were many of rare diseases, including an astonishing number of different types of scleroderma and atrophic diseases of the skin. The wards were well lighted and the cases well presented. The greater part of the material was naturally obtained from various clinics in Budapest, though numerous patients were sent from other cities of Hungary and a few came from Vienna, Austria. I shall omit any description of the scientific and commercial exhibits, as this will be given by Dr. Clark W. Finnerud.

In honor of the congress a special high mass was celebrated at the St. Stefans Basilica on Sunday morning, the bishop officiating. The formal opening of the congress took place shortly afterward in a beautiful dome-shaped hall of the parliament building. Professor Nekam, as president, sat in the center of a raised platform, together with eleven members representing the larger nations, including the United States. Near the platform were numerous representatives of the government, university, diplomatic corps and business world. The meeting was conducted with great dignity in a colorful setting, one feature of which was the presence of soldiers in striking dress uniforms. Addresses of welcome were made by Professor Nekam, by the rector of the university and by other officials; speakers alternately using the four official languages. The glee club of the university sang the Hungarian national anthem and the Marseillaise, the latter being rendered in honor of Darier. The special feature of the meeting was the presentation of the honorary degree of Doctor of Medicine to Professor Jean Darier. The great applause which he received reflected the admiration and affection of the audience for this distinguished and beloved man.

While the main purpose of an international congress is supposed to be the presentation of scientific papers, exhibits and patients, a feature which many think even more important is the opportunity to become acquainted with members whose names are familiar to all. Old friendships are renewed, and a good excuse is offered for sightseeing and for visits to famous clinics. American members not only had the opportunity to meet distinguished foreign colleagues but also became better acquainted with one another during the congress and during the voyage. Twelve members of the American group went to Europe on one steamer, and fifteen returned together on another. The majority of the delegation from the United States also stayed at the same hotel in Budapest (St. Gellert). This was a fine

building conveniently located and provided with a large outdoor swimming pool and with a beautiful scenic background. Several groups of a half-dozen or more lunched almost daily on the terrace overlooking the pool.

The entertainment provided by the hosts in their beautiful city began with a reception in the royal palace on Sunday afternoon. Five or six hundred of the visiting men and women gathered in a large hall and were addressed by Admiral Horthy, the regent of Hungary. After reading a speech of welcome in four languages the regent passed along the front row of the audience, where the governmental delegates stood, and conversed fluently in four languages with the various groups. When some one complimented him on his linguistic ability, he said that he spoke numerous other languages. The formal reception was followed by an outdoor supper and concert in the palace gardens.

Other entertainments included a banquet, attended by six hundred men and women, a smoker, a gala performance of the opera and several private receptions and lunches. One evening was reserved for receptions or other entertainment at the various legations. A group of about fifty American men and women were delightfully entertained that evening at a buffet supper by the Chargé d'Affaires of the American legation and his wife, Mr. and Mrs. Benjamin R. Riggs. During the course of the banquet requests were made on short notice to about eight of the persons present to speak for their respective nations. It was just as well that the speeches were short and impromptu, as few were heard by the large audience, owing chiefly to difficulties with the loud speaker. Most of the official cards of invitation were printed in Latin, as were some of the communications sent before the congress to prospective members. The use of Latin obviated any show of partiality to one or another nationality. I hope, however, that the other members of the congress had forgotten less Latin than I had.

An entirely new feature attempted at this congress was the formation of six committees and four conferences to consider dermatologic problems of general interest. For this purpose the two days immediately preceding the congress were devoted to the deliberations of these committees, the majority of which held both morning and afternoon sessions. While this is not the proper place to attempt to give any résumé of the more important scientific communications of the congress, many of which were published in the presessional volume, it may be of interest to quote some of the recommendations made by the aforementioned committees.

The report of the Permanent International Committee under the leadership of Darier was made at a meeting of the delegates from dermatologic societies of the various nations. While it was recognized that the establishment of a true international association of dermatology was practically impossible, it was thought advisable to establish an international league of dermatologic societies. It was recommended that a yearly assessment of 25 Swiss centimes be made for each member of the constituent societies. The committee commended the plan of Professor Nekam to publish a printed list of the members of all dermatologic societies every five years, particularly in the year preceding the congress. The committee was in favor of apportioning the number of delegates as follows: one delegate for societies with less than forty members, two for those with forty to one hundred members and three delegates for those with more than one hundred members. It was thought advisable to limit the size of the committee to eleven members, i. e., twelve including the president of the next succeeding congress. A certain continuity of membership was to be obtained by retiring only four of these members at the meeting of each congress. To fill the places of Krzysztalowicz and Bloch, who died, and Jadassohn, who resigned, the names of Leszczyński,

Arzt and Zieler, were proposed. Cole was nominated by the delegation from the United States as a member of the committee.

An invitation was extended by the Spanish members to hold the next congress at Madrid, Spain, in 1939 or 1940. The American delegation requested that the congress following that in Madrid be held in New York. While this action would have to be confirmed by the national societies, at least an option on having a subsequent congress in the United States was obtained.

The following men were recommended for membership in the permanent committee: Darier (France) chairman, Arzt (Austria), Cole (United States), Covisa (Spain), Gray (England), Lespinne (Belgium), Leszczyński (Poland), Lomholt (Denmark), Nekam (Hungary), Peyri (Spain), Truffi (Italy), Zieler (Germany), and Civatte (France) as alternate for Darier.

The recommendations of the committee were unanimously accepted.

The Committee on Terminology (Rille, chairman) recommended that names of cutaneous diseases should be short and preferably written in Greek or Latin. Classic designations should be retained, and names of persons should be omitted as far as possible. In no case should names of two entirely different diseases, such as pemphigus syphiliticus or lichen trichophyticus, be combined. Names of diseases should, as a rule, not be encumbered with those of anatomic locations. It was also recommended that a permanent committee on terminology be formed, that it have joint meetings with the committee on classification and that it report at the next international congress.

The Committee on Classification (of which I am chairman) agreed that any classification based on etiology, morphology or pathogenesis alone was not satisfactory. The committee recommended a combined classification based on three features, including (1) morphology (macroscopic and microscopic), (2) pathology (reactions, dystrophies, tissue anomalies, etc.) and (3) etiology (infections, parasitic and toxic agents).

The Committee on Teaching (Arzt, chairman) recommended as the minimum dermatologic requirement for undergradute students four hours a week for from two to three semesters. It stated that for the training of a specialist in dermatology three years in a large clinic or hospital is needed and that one year at least should be spent in a university clinic. Attendance at subsequent postgraduate courses each year in the largest university clinics was also recommended.

Committee no. 5 (Tommasi, chairman) discussed the proposal to form a central bureau for the gratuitous exchange of scientific and teaching material. It was recommended that the clinic for patients with cutaneous diseases in Budapest should take charge of such a bureau for the next five years. The object of the bureau would be to facilitate the exchange of microscopic preparations, vaccines, cultures, photographs, statistics, reprints, etc. The only expense to be incurred would be that for postage and containers. It was recommended that information about material at hand be published at intervals.

The Committee on Professional Problems (Graham Little, chairman) deplored further socialization of medicine and opposed any advertising by physicians. It disapproved of the compulsory notification of venereal diseases and was in favor of private confidential treatment and propaganda advising patients to seek medical advice at the earliest possible moment. Compulsory sterilization was not considered justifiable at the present time.

In addition to the meetings of the six aforementioned committees, four conferences were held before the congress opened. At the conference on prevention of venereal diseases twenty-one papers, and at the conference on comparative der-

matology twenty-seven papers, were read, making a total of four hundred scientific communications read at the meetings in Budapest.

The conference on tuberculosis (Lomholt, chairman) recommended a statistical study of cases of lupus including a survey of the age, sex, occupation and economic conditions of the patient, the occurrence of important complications and the frequency of human versus bovine infections. It was stated that special instruction should be given to general practitioners, dermatologists and particularly school physicians and those who treat tuberculosis. In the opinion of the committee prophylactic treatment of lupus is similar to that of other forms of tuberculosis in regard to nutrition, especially ingestion of vitamins. The conference urged the need of government aid for hospitalization, transportation of patients, etc., of the erection of special institutes with complete equipment for phototherapy and dietetic treatment and of a competent staff of specialists. It recommended continued observation of patients to detect recurrences and malignant changes.

The conference on prevention of venereal diseases (Neuber, chairman) recommended examinations for these diseases before marriage. It also urged that medical examination of children about to enter school be made compulsory by law. The importance of sex instruction for school children and the need of institutes for the treatment of venereal diseases were stressed.

The conference on occupational diseases (Oppenheim, chairman) recommended that a list of poisonous substances be prepared and that occupational dermatoses be classified according to physical, chemical and infectious etiology and clinical appearance. The conference recommended that special clinics for these diseases be organized and that clinical instruction in dermatology be made to include the study of occupational diseases. It stated that factories should be visited and the material used in industry investigated. As an aid in solving the difficult problem of estimating the percentage of disability it was recommended that industrial physicians be instructed in special features of dermatology and that dermatologists become familiar with industrial hygiene.

If it is not too presumptuous, I wish to make several suggestions about international congresses in general, as a result of having attended four such meetings. In my opinion the number of scientific communications is unnecessarily large, as a rule, and could be partly reduced by prohibiting any member from reading more than one paper. Furthermore, if authors are not present in person their papers should not be read. An interval of four years between each congress is better than one of five, as the shorter period is more favorable for maintaining a continuity of interest. While the present arrangement of having a permanent international committee is excellent, its powers should later be increased and it should have the aid of a permanent full time secretary. It might be feasible to empower the central committee to decide on the scientific aspect of future congresses, leaving the business arrangements and entertainment to a local committee in the city where the congress is held. I would add in conclusion that if much value is to accrue from the work of committees and conferences such as those which functioned for the first time at Budapest, it will be necessary for them to continue their work for an indefinite number of years.

HOWARD FOX, M.D., New York.

To the Editor:—The scientific exhibit showed careful planning and was remarkably complete. One needed to see and study it in order to appreciate its magnitude entirely. It was arranged under the direction of Dr. E. Szántó, Budapest, Hungary, with the collaboration of Dr. F. Földváro and Dr. L. Vámos. There was a

constant large attendance in the hall in which it was located, the members of the congress devoting their spare time between the papers which they were interested in hearing to a study of the exhibits. Space prohibits proper mention of each exhibit.

. The dermatophytes, assembled under the direction of Dr. E. Ballagi of Budapest, were particularly well illustrated by cultures, photographs and drawings from the collections of Drs. Fred Weidman, Philadelphia; Hopkins and Benham of Columbia University, New York (the latter being concerned chiefly with Cryptococcus and Monilia); Sabouraud, Paris, France; Castellani, London, England; Neuber, Debreczin, Hungary; Poor, Szegedin, Hungary; Nekam, Budapest, Hungary; Ota, Japan; Pollacci, Pavia, Italy; Kerl, Vienna, Austria; Houlousi Behdjet, Istanbul, Turkey; Benedek, Leipzig, Germany; Berde, Pécs, Hungary; Mierzecki, Poland, and Szathmáry, Gyula, Hungary. Such a collection of type cultures has probably never been assembled before.

Benedek, Leipzig, Germany, created interest in his exhibit on Schizosaccharomyces hominis (Benedek 1927) and its behavior saprophytically and pathogenically on the skin and in the blood.

There was a remarkable demonstration by Professor Nekam, Budapest, Hungary, of bacteria, insects and vegetable irritants capable of producing dermatoses. Nekam also beautifully demonstrated fixed gross pathologic specimens from malleus, mycosis fungoides, syphilis and other diseases.

Dr. Howard Fox, New York, presented an excellent photographic demonstration of cutaneous diseases in Negroes. The histopathogenesis of aberrant lesions of psoriasis was illustrated by Dr. MacKee and Dr. Foster, New York; an exhibit on granuloma coccidioides was presented by Dr. Lehman and Dr. Pipkin, San Antonio, Texas; one on industrial dermatoses was presented by Dr. John G. Downing, Boston; avitaminosis A and leprosy were illustrated by an exhibit of Dr. Reiss of the National Medical College, Shanghai, China; and an exhibit on cutaneous tumors and other dermatoses, both clinical and histologic, was presented by Dr. E. Freund, Trieste, Italy, and by Dr. Kolaritz, Budapest, Hungary.

Dr. Paul A. O'Leary, together with associates of the Mayo Clinic, Rochester, Minn., was awarded one of the medals. His exhibit was composed of charts illustrating serologic study of syphilis, treatment of gonorrhea and gonorrheal arthritis by heat, cutaneous ganglioneuroma, localized myxedema of the skin, pyoderma gangraenosum and studies on the etiology of pemphigus.

Among other noteworthy photographic clinical demonstrations was one on focal infections in relation to dermatology by Dr. Ayers and Dr. Anderson, Los Angeles, one on leprosy and leishmaniasis by Dr. Oppenheim, Vienna, Austria, and a beautiful clinical and histologic demonstration of leprosy by Dr. H. P. Lie, Bergen, Norway.

One of the most spectacular demonstrations was a collection of moulages and mounted animals showing cutaneous diseases analogous to eczema, fungous infections, etc., in man, the work of Professor Henry of the School of Veterinary Medicine, Alfort, England. Many members agreed that the study of comparative dermatology is worthy of encouragement in all medical centers.

There was a huge collection of moulages and "transparencies," beautifully arranged in glass cases, the property of Nekam of Budapest, Hungary; Drs. S. Tataru, Rumania; E. Neuber, Debreczin, Hungary; Oppenheim, Vienna, Austria; Guszman, Budapest, Hungary; and the Saint Louis Hospital, Paris, France. They were worthy of high praise.

Considerable interest centered around a collection of photographs and engravings of numerous leading dermatologists of past centuries, for the most part the property

of Professor Nekam and of the Saint Louis Hospital, Paris, France. In the same department were also included manuscripts, books and personal letters of these well known fathers of dermatology. It was carefully stressed that Gruby was a Hungarian, although most of his work was done in Paris. Probably his most important contribution was the discovery, in 1843, of the species of Microsporon most commonly responsible for ringworm of the scalp in children, which he named Microsporon Audouini in honor of the famous zoologist, Audouin.

One demonstration which undoubtedly will prove particularly practical was that of a new method of producing colored positive transparencies. The demonstration was given by Professor Neuber of Debreczin, Hungary, by a method produced and marketed by Finley Colour, Ltd., London, England.

Professor Nekam illustrated quantitatively in glass tubes the individual chemical content of the epidermis, of the epidermis and cutis, and of the epidermis, cutis and subcutis of 1 Kg. of human skin. Space prohibits the tabulation of the various weights and percentages here, but it may be mentioned that the chief ingredients are oleic acid, palmitic acid, stearic acid, glycerin, cholesterol, alcohol, lecithin, soluble albumin, nucleo-albumin, urea, glycogen, saccharin, sodium chloride, silica, water and keratin A and B.

Worthy of mention was the large technical or industrial exhibit. Physical apparatus, such as microscopes, instruments, etc., as well as drugs and dyes, were reasonably priced and apparently rather freely purchased, probably partly because of the favorable rate of exchange, but books and journals remained expensive.

The clinical meeting was held on Saturday morning, Sept. 21, 1935, the last day of the congress. It was scheduled for that date in order to induce as many as possible of the members of the congress to remain to the end of the meeting. About 140 patients were presented in one large room. The demonstrations were well diversified and comprised a large proportion of the less commonly observed cutaneous diseases. Dr. Sellei's group of 6 patients with acrosclerosis and 13 patients with scleroderma, together with 6 patients with different forms of extensive atrophy and 1 patient with scleredema created particular interest. Unfortunately, adequate opportunity was not afforded for discussion of the cases. This was particularly unfortunate because a rather large number of patients were presented with questionable diagnoses. The cases were well worked up and beautifully presented from the standpoint of clinical and laboratory study.

CLARK W. FINNERUD, M.D., Chicago.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

ROENTGEN DERMATITIS TREATED WITH FRESH WHOLE LEAF OF ALOE VERA. C. E. COLLINS and CRESTON COLLINS, Am. J. Roentgenol. **33**:396 (March) 1935.

Collins and Collins report the case of a woman, aged 31, who had a severe dermatitis due to roentgen rays. Desquamation was present on the left side of the forehead. The patient had received a depilating roentgen treatment in May 1932, and an exfoliative dermatitis resulted. Varied local treatment was given without effect, and exfoliation and severe itching persisted at the treated site. The patient received a local application of the fresh whole leaf of Aloe vera to allay the itching. Within twenty-four hours the sensation of itching and burning subsided, and the condition progressively improved within the next five weeks and showed "complete regeneration of skin of the forehead and scalp, new hair growth, complete restoration of sensation and absence of scars." The area was completely healed by July 1934.

The leaf of Aloe vera contains a large quantity of light, yellowish-green material having about the color and consistency of lemon gelatin, and this "intestine" material is used for local application. The leaf may be split lengthwise or cut into thick cross-sections and the "intestine" material macerated. While this is still fresh, liberal quantities are applied to the area to be treated, which is covered with a neutral, nonporous substance, such as waxed paper. After an hour or two the application is found to be dark and gummy. It is washed off carefully with warm water, no soap or medication being used. The applications may be renewed as often as is desirable and convenient.

WIEN, Chicago.

TREATMENT OF HEMANGIOMAS. DONALD W. MACCOLLUM, Am. J. Surg. **29**:33 (July) 1935.

MacCollum reports the results of treatment in 697 cases of hemangioma at the Children's Hospital, Boston. Four hundred and eighty-seven cases were in females and 210 in males, and 67 per cent of the lesions occurred on the head, face and neck. In 80 per cent of the port wine nevi (36 cases) there was improvement or cure after treatment with blistering doses from a water-cooled quartz mercury vapor arc lamp. In the slightly raised, finely lobulated reddish-blue tumors of the skin and subcutaneous tissues (418 cases) the best results were obtained with application of carbon dioxide snow. The cavernous nevi (86 cases) when small and in suitable positions were treated by excision or by application of carbon dioxide snow. The deeper lesions required coagulation by endothermy; complete cure was effected in 40 per cent of the cases in this group, and improvement resulted in the remainder. The fourth group (195 cases) of hemangiomas consisted of coarsely lobulated, spongy reddish-purple tumors which protruded deeply into the subcutaneous and underlying tissue. Some of these also were excised or obliterated with carbon dioxide snow, but 25 per cent were treated either with endothermy alone or with a combination of application of carbon dioxide snow to fade the capillary portion and endothermy to the base. The technic of the coagulation by endothermy is described.

EPITHELIOMA FOLLOWING CHRONIC PARONYCHIA. ISIDORE SILVERMAN, Am. J. Surg. **29**:141 (July) 1935.

A 70 year old woman struck her thumb at the nail with a fish-bone. At the site there developed a chronic infection with excessive granulation, which was

treated at intervals by excision and small doses of roentgen irradiation. A biopsy failed to show evidence of malignant degeneration, but two years after the accident a typical squamous cell epithelioma developed.

CUTANEOUS HORN OF THE SCALP. HERMAN CHARACHE, Am. J. Surg. **29**:297 (Aug.) 1935.

In the case herein reported the horn was huge, measuring 20 cm. in length and 8 cm. in diameter. It simulated a ram's horn, with two spirals. The report contains two photographs and a review of the literature.

RATTNER, Chicago.

INFECTIOUS DISEASES: REVIEW OF THE CURRENT LITERATURE. H. A. REIMANN, Arch. Int. Med. **56**:382 (Aug.) 1935.

In discussing infectious diseases of a general nature Reimann reviews the knowledge of Vincent's disease of the mouth. He is not convinced by evidence offered at present that the spiral and fusiform organisms found in this condition are the actual etiologic agents. Most observers regard them as saprophytes. He also believes that circumstantial evidence alone supports the belief that neoarsphenamine has any influence on the infection in a disease which is self-limiting if untreated. Spiral and fusiform organisms are found in other cases of stomatitis in which intensive treatment with neoarsphenamine is administered for other conditions. Ulcerative stomatitis was produced in dogs by Miller and Rhoads by means of a restricted diet, and Lillie believes that ulcerative lesions of this type are trophic. Direct inoculation of the organisms failed to produce lesions.

JAMIESON, Detroit.

THE REACTIONS ATTENDING THE INTRAVENOUS USE OF THE ARSPHENAMINES. HAROLD ORR, Canad. M. A. J. **32**:19 (Jan.) 1935.

Orr describes the various reactions to arsphenamine and in discussing their causes points out that the causes are probably as diverse as the reactions themselves. In the clinics in Alberta, Canada, there is a rule that when a patient with apparent nitritoid crisis fails to respond to epinephrine therapy within three minutes, medical shock is to be assumed and intravenous administration of saline solution started at once. Medical shock differs fundamentally from the nitritoid crisis, showing a capillary paralysis rather than a paralysis of the arterioles. Orr mentions a case and gives a photograph of an unusual fixed eruption from intravenous administration of arsphenamine, which began as a single urticarial wheal that subsided, leaving a brownish stain. With each subsequent injection there formed a new wheal a bit larger than the preceding ones, the differences in the degree of pigmentation giving the lesion an iris-like appearance.

BACTERIOPHAGE IN THE INJECTION TREATMENT OF CARBUNCLES AND ALLIED SUPERFICIAL INFECTIONS. H. GURTH PRETTY, Canad. M. A. J. **32**:24 (Jan.) 1935.

For small carbuncles, not over 3 cm. in diameter, Pretty describes a particular technic. The carbuncle is divided into four quadrants, each of which is anesthetized with a local anesthetic. Bacteriophage is then injected along the circumference of the quadrant, with the needle pointing toward the center. Successive quadrants are then similarly treated, for absorption takes place too rapidly to permit the entire circumference of the carbuncle to be anesthetized at once. Such treatment may be carried out for three successive days without danger of a protein reaction. For generalized furuncles the treatment recommended is a combination of subcutaneous and oral *bactéstaphy-phage*. The paper is based on clinical experience; no factual data are furnished, but Pretty is convinced that in his hands treatment with bacteriophage has been highly satisfactory in cases of carbuncles, furuncles and paronychia, and especially in cases of carbuncle of the upper lip.

RATTNER, Chicago.

OBSERVATIONS ON THE TREATMENT OF ACNE VULGARIS. JEFFREY C. MICHAEL, J. A. M. A. **105**:327 (Aug. 3) 1935.

From a comprehensive review of the literature and from his own personal observations Michael draws attention to the necessity for an etiologic point of view in the treatment of acne vulgaris. He differentiates the treatment of younger from that of older patients. For the younger patient general measures and local applications should be used rather than roentgen rays. For older patients, especially for those between 18 and 25, roentgen therapy together with supportive measures is the method of choice. The treatment of acne should be individual and not stereotyped.

MACULAR LEPROSY: REPORT OF A CASE OCCURRING WITHOUT ANESTHESIA. EWELL I. THOMPSON and ALBERT DE GROAT, J. A. M. A. **105**:357 (Aug. 3) 1935.

A case of macular leprosy occurring in a native American resembled to some degree eruptions of pityriasis rosea, syphilis and dermatophytosis. No anesthesia was noted. The leprosy bacillus was found in smears from the nose and in stained sections from a cutaneous lesion and from a lymph node.

FACIAL ERYSIPELAS: EVALUATION AND COMPARISON OF SPECIFIC ANTISERUM AND ULTRAVIOLET THERAPY. H. JERRY LAVENDER and LEON GOLDMAN, J. A. M. A. **105**:401 (Aug. 10) 1935.

Of ninety adult patients with facial erysipelas, thirty-two were treated with specific antiserum, twenty-six received ultraviolet therapy and thirty-two were used as controls, receiving applications of simple wet dressings. Analysis of the results led the authors to believe that ultraviolet irradiation was superior to serum therapy, since the patients so treated responded more quickly to treatment and had fewer complications.

CONGENITAL SYPHILIS: THE RESULTS OF TREATMENT IN CHILDREN. FRANK R. SMITH JR., J. A. M. A. **105**:409 (Aug. 10) 1935.

Smith analyzed the records of 991 patients, of whom 621 had early congenital syphilis and 370 the late form. Only patients who had been followed for at least two years were included. Infants dying in the obstetric wards or patients suffering relapses after puberty were not included. Seventy per cent of the patients were Negroes and thirty per cent were white children.

Congenital syphilis was not present in children when the mother received fifteen or more injections of arsphenamine during the pregnancy. The importance of starting treatment at an early age is stressed, together with the amount of treatment to be administered in the first years. When treatment was begun before the patient was 6 months of age, the child had an 84 per cent chance of cure, as evidenced by serologic as well as clinical observations, provided fifty injections were given before the age of 2 years. The incidence of relapse increased with the age at which the treatment was started and decreased with the amount of treatment.

The method of treatment has varied. Since 1928, Smith has used the continuous method, alternating courses of administration of arsphenamine with courses of treatment with a bismuth compound, the doses depending on the age and weight of the patient. The older children were given neoarsphenamine, but for infants and children with poor veins sulpharsphenamine was used. The bismuth preparation was the 10 per cent subsalicylate in oil. Such treatment was continued for a minimum of one year. Further treatment was indicated where there was serologic or clinical evidence of activity.

THE BALANITIDES. JOHN F. MADDEN, J. A. M. A. **105**:420 (Aug. 10) 1935.

Madden defines the balanitides as inflammations of the glans penis that are usually associated with inflammations of the prepuce. On bacteriologic, anatomic,

histologic and clinical bases, he classifies the balanitides as follows: (1) balanitis simplex; (2) balanitis vulgaris; (3) balanitis due to specific local infections; (4) balanitis as a part of general exanthematic diseases; (5) balanitis accompanying metabolic disorders; (6) balanitis accompanying new growths; (7) balanitis following local changes in the tissues. Examples of each type are cited from the literature and from Madden's personal experience.

CONGENITAL SYPHILIS: DIAGNOSIS BY MEANS OF DARK-FIELD EXAMINATION OF SCRAPINGS FROM THE UMBILICAL VEIN. N. R. INGRAHAM JR., J. A. M. A. **105**:560 (Aug. 24) 1935.

Dark-field examination of the umbilical vein was instrumental in detecting syphilis in nineteen (21.8 per cent) of eighty-seven living offspring of syphilitic mothers. Although the method cannot be used for every delivery, its use when a diagnosis of syphilis was made on the mother may establish a diagnosis of congenital syphilis before the appearance of clinical symptoms or before other laboratory procedures reveal evidence of the disease.

THE DIAGNOSIS OF CONGENITAL SYPHILIS. A. H. PARMELEE and L. J. HALPERN, J. A. M. A. **105**:563 (Aug. 24) 1935.

In a series of 104 infants born of mothers known to have syphilis, clinical, serologic and roentgen examinations were carried out during the first year of life. The roentgen rays were found to possess the greatest diagnostic value. In over 95 per cent of cases of proved congenital syphilis there were osseous lesions as revealed by roentgenograms, while a positive serologic reaction was obtained in only 29 per cent of the same cases.

JUVENILE DEMENTIA PARALYTICA. U. J. WILE and E. A. HAND, J. A. M. A. **105**:566 (Aug. 24) 1935.

The prognosis of juvenile dementia paralytica, which has been considered more unsatisfactory than that of dementia paralytica in adults, has been changed little, if at all, by the advent of malaria and other forms of fever therapy. Such treatment should be used only in rare selected cases.

PAROXYSMAL HYPERHIDROSIS IN A DIABETIC PATIENT, WITH REMISSION UNDER AMYTAL THERAPY. EDGAR HULL and PAUL B. CAMERON, J. A. M. A. **105**:585 (Aug. 24) 1935.

The patient whose case is reported had suffered from paroxysmal hyperhidrosis for nine years, the attacks occurring at intervals of approximately every two hours day and night. The cause of the attacks was not discovered, but the patient was greatly helped by the administration of sodium amytal. Report of only one similar case was found in the literature.

THE THERAPY OF THE COOK COUNTY HOSPITAL: THERAPY OF URTICARIA AND ANGIONEUROTIC EDEMA. THEODORE CORNBLEET, J. A. M. A. **105**:595 (Aug. 24) 1935.

Urticaria is considered as a symptom complex in which the exciting agent must be discovered to effect a cure. A detailed description of the steps necessary, together with prescriptions, makes the article a valuable summary of existing knowledge.

SYSTEMIC THRUSH IN CHILDHOOD. F. W. SCHLUTZ, J. A. M. A. **105**:650 (Aug. 31) 1935.

Four cases of systemic thrush are reported, in one of which a diagnosis based on culture of the organism was established. General alopecia was noted in three

of the patients, and in two the disease was considered responsible for a marked dwarfing. The more recent literature on the subject is not reviewed.

COLD URTICARIA FOLLOWING MEASLES IN THREE SISTERS. J. L. KOBACKER and H. J. PARKHURST, J. A. M. A. **105**:662 (Aug. 31) 1935.

After attacks of measles urticaria developed in three sisters when their skins were exposed to cold, for example, when the skin came in contact with a cold milk bottle. The tendency gradually subsided and after a year disappeared entirely.

LEWIS, New York.

FRACTIONAL GASTRIC ANALYSIS IN DISEASES OF THE SKIN: FURTHER OBSERVATION IN 316 CASES, WITH SPECIAL REFERENCE TO ROSACEA. W. HERBERT BROWN, MARY S. SMITH and ALLISON D. MCLACHLAN, Brit. J. Dermat. **47**:181 (May) 1935.

The authors discuss the results of gastric analysis reported in this and previous papers, the observations being based on two hundred cases of rosacea and on two hundred and sixteen cases of disorders other than rosacea. Twenty-eight per cent of the patients with rosacea and 35 per cent of those with other dermatoses showed achlorhydria and marked hypochlorhydria. The gastric findings remained constant, although the clinical condition varied. It was concluded that a degree of subacidity seems to be a feature of chronic dermatoses in general and not a characteristic of rosacea only.

RECURRENT MENSTRUAL PURPURA AND VICARIOUS MENSTRUATION. PHILIP ELLMAN and F. PARKES WEBER, Brit. J. Dermat. **47**:197 (May) 1935.

Ellman and Weber report a case of hemorrhagic menstrual eruption in a woman, aged 58, who, since the age of 47 had recurrent purpura limited to the lower extremities. The menopause had occurred at 52. Before the menopause the purpuric spots were small, but after the menopause the attacks became worse, recurring at first every month but later appearing every two months. The purpura, together with large ecchymotic patches below the knees, was painful and at times was accompanied by sore throat. The attacks lasted one week and then faded two weeks. The eruption was probably of an anaphylactoid type. The blood was normal except for a slight diminution in the number of thrombocytes. The coagulation time was slightly increased.

MULTIPLE SUBCUTANEOUS NODULES IN A CASE OF LYMPHOSARCOMA. N. M. MATHESON, Brit. J. Dermat. **47**:233 (June) 1935.

Matheson reports the case of a man, aged 26, who had a lymphosarcoma of the left cervical region, which disappeared after high voltage roentgen therapy. Later a mass in the right upper portion of the abdomen and symptoms of biliary obstruction appeared. Three months later there appeared an asymptomatic eruption consisting of discrete, fully movable nodules from the size of a millet seed to that of a cherry. All these nodules were situated over the midabdominal area.

At postmortem examination (about fifteen months after the onset of the condition) there was found a lymphosarcoma of the retroperitoneum at the upper part of the mesenteric root with metastases to the liver, upper abdominal viscera, axillary and inguinal lymphatic fields and subcutaneous tissue of the chest and abdomen.

WIEN, Chicago.

THE ELEMENTARY BODIES OF ZOSTER AND THEIR SEROLOGICAL RELATIONSHIP TO THOSE OF VARICELLA. C. R. AMIES, Brit. J. Exper. Path. **15**:314, 1934.

Elementary bodies morphologically similar to those found in varicella and vaccinia are constantly present in the fluid from the vesicles of zoster. Pure suspen-

sions of these bodies, prepared by high speed centrifugation of fluid from vesicles of zoster, are specifically agglutinated by zoster convalescent serum. Attempts to demonstrate a relationship of zoster and varicella by means of cross-agglutination tests have met with a fair measure of success.

FROM THE AUTHOR'S SUMMARY.

SOME CONSTITUTIONAL DERMATOSES. JOHN T. INGRAM, Brit. M. J. **1**:877 (April 27) 1935.

Often a cutaneous eruption is a reflection of deeper significance; as illustrations of this fact Ingram chooses four common and troublesome dermatoses and interprets them in terms of general constitutional disturbances.

Infantile eczema, he states, is entirely a manifestation of a temperamental sensitivity in a child with a sensitive skin. It is an itching of the skin provoked by exposure in a child who at the age of 2 or 3 months, for inherited or environmental reasons, is temperamentally sensitive. Ingram does not believe that any other factors cause infantile eczema. Exacerbations may be provoked by gastro-intestinal disturbances, irritations caused by napkins, climatic changes, etc., but these factors are not primary causes, and the infective organisms which can be cultured from fissures behind the ears are entirely secondary. He states that he has never yet encountered a case of infantile eczema due to cow's milk or any other foodstuff, and he does not believe that such an etiology is possible. In fact, most infants thrive on cow's milk; they should be taken off the breast, for the majority are born of temperamentally unstable mothers, and the intimate association of breast feeding is not helpful.

The infective seborrheic eczemas and sycosis belong in another division of constitutional disease. Patients with these conditions have, among other disturbances of function, seborrheic conditions of the skin and of the respiratory and gastro-intestinal tracts. The skin has a lowered resistance against infection. The mucous membranes are flabby and edematous, present an excess of secretion and are invariably infected; infected nasal sinuses, polypi, enlarged tonsils and adenoids, pyorrhea, soft teeth and dental sepsis are present. The gastro-intestinal tract is atonic, showing excessive mucus and giving rise to constipation and impairment of digestion and assimilation of food, with consequent malnutrition, which is the responsible constitutional background. Local treatment of the skin alone is hopeless; if the condition is viewed as a whole and treated accordingly by dealing with the foci of sepsis, regulating the diet as for a hypotonic dyspepsia and administering iron and vitamins, there is an immediate response.

Ingram states that the majority of cases of lichen simplex chronicus are seen in women at or after the menopause; generally the patients are of stout build and have recently tended to take on more weight. There is always high blood pressure with attendant symptoms of headache, dizziness, a tendency to fall and insomnia. Attention must be given to these matters to effect a cure.

Rosacea, the fourth dermatosis, is built up on facial flushing, and the causes of rosacea are those of facial flushing. There is always a background of temperamental and emotional sensitiveness, and in many cases this, together with some increased mental anxiety, constitutes the whole problem. Flushing and rosacea may be caused by gastric disturbance, a flatulent hypotonic dyspepsia, pelvic disturbances in women, functional dysmenorrhea and sepsis in the nose, mouth and throat.

CALCINOSIS WITH SCLERODERMA IN AN ADULT FEMALE. IAN R. MILNE, Brit. M. J. **1**:1072 (May 25) 1935.

Milne describes a case of scleroderma and calcinosis of three years' duration which occurred in a woman aged 27. The level for blood calcium was found to be within normal limits, and there appeared to be no cause for the onset of the condition.

RATTNER, Chicago.

ELEPHANTIASIS NOSTRAS (NON-FILARIAL ELEPHANTIASIS). A. CASTELLANI, J. Trop. Med. **37**:257 (Sept. 1) 1934.

In this condition the filarial origin can be excluded with certainty. Castellani suggests the following three divisions of elephantoid conditions in general: (1) filarial elephantiasis, (2) elephantiasis nostras, (3) pseudo-elephantiasis due to syphilis, yaws or tumors. Cases have been reported from practically every country in the temperate zone in Europe and America. Using secretions obtained from glands during attacks of lymphangitis, Castellani was able to grow two little known organisms of the types Streptococcus (Micrococcus) metamyceticus and Streptococcus (Micrococcus) myceticus.

The pathologic changes, morbid anatomy and histologic picture are minutely considered, and a description of the symptomatology is given. Differential diagnosis is made between this condition and all other types of elephantiasis and elephantoid conditions due to other diseases.

As treatment Castellani recommends administration of salicylates in the early stage in which repeated attacks of lymphangitis occur.

Autogenous vaccines are useful in afebrile periods for the prevention of further pyrexial attacks. When pyrexial attacks no longer occur a period of rest once or twice a year is recommended, with complete rest in bed for three or four weeks, bandaging and injections of fibrolysin. Surgical treatment is not satisfactory unless the condition is localized. Reports of cases are given, together with excellent photographs, photomicrographs and roentgenograms.

RELATION OF ELECTRICAL AND HYGROMETRIC CONDITIONS OF THE ATMOSPHERE TO SURGICAL SKIN INFECTIONS IN EGYPT. A. KNIPFER, J. Trop. Med. **38**:123 (May 15) 1935.

After a study of the incidence, at various seasons, of furuncles, phlegmons, abscesses and adenitis, Knipfer has drawn some interesting conclusions as to the relation of these infections to the atmospheric conditions.

He believes that surgical infections of the skin are increased proportionately to the evaporation from the skin, as with greater perspiration an acid envelop is formed which protects the skin.

The same cause (dry air) acts on the production of negative ions, which reacts on well-being in general and on cutaneous capillaries.

The reason, he states, lies practically in the absolute humidity.

JAMIESON, Detroit.

A CASE OF HAEMOGLOBINURIA COMPLICATING PULMONARY TUBERCULOSIS DURING THE ADMINISTRATION OF GOLD. DAVID B. ROSENTHAL, M. J. Australia **1**:557 (May 4) 1935.

A man aged 28 years received aurothioglucose intravenously, in graduated doses, for pulmonary tuberculosis. Hemoglobinuria and secondary nephritis developed; these were attributed to the gold preparation, because several examinations had failed to reveal evidence of preexisting renal disease. The possibility that tuberculous toxemia was the causative factor was considered, but hemoglobinuria as distinct from hematuria is not a usual finding in cases of this condition.

CONGENITAL ECTODERMAL DYSPLASIA. LORIMER DODS, M. J. Australia **1**:715 (June 8) 1935.

Dods reports the case of a girl, aged 8 years, who showed gross dental aplasia, a wide nasal bridge, thick protruding lips, a smooth dry skin with papular lesions and a partial failure of hair growth. There was no disturbance of the sweat glands.

RATTNER, Chicago.

LUPUS VULGARIS. W. J. O'DONOVAN, Proc. Roy. Soc. Med. **26**:715 (April) 1934.

A case of lupus vulgaris in a boy 1 year old is reported. When the child was 3 months of age a small spot was noticed on the left cheek, and a little later the glands in front of the left ear became enlarged. On admission to the hospital a dry reddish ulcerated area about 2 cm. in diameter, with a few apple jelly nodules, was present. The preauricular lymphatic glands were enlarged, firm and purple. The Mantoux reaction was positive. Two points of interest in this case are: the age of the patient and the evidently secondary infection of the glands following a primary tuberculous lesion of the skin.

WILLIAMSON, New Orleans. [AM. J. DIS. CHILD.]

DERMATITIS OF DUHRING HAVING BEGUN AS ERYTHEMA ANNULARE CENTRIFUGUM. LOUSTE and RABUT, Bull. Soc. franç. de dermat. et syph. **41**:750 (May) 1934.

The patient whose case is reported was presented before the society in 1928 with a diagnosis of erythema annulare centrifugum. He was followed afterward and suffered repeated outbreaks; there was no doubt as to the diagnosis of dermatitis herpetiformis at the presentation reported in the article. The case again illustrates the fact which has been urged by many observers, namely, that erythema annulare centrifugum is a symptom of Duhring's disease.

GANDY, Houston, Texas.

ERYSIPELAS IN INFANTS CURED BY AN INTRADERMAL BARRIER OF FILTRATE OF OLD STREPTOCOCCUS CULTURE. E. HURMUZACHE, Bull. Soc. de pédiat. de Iasi **4**:127 (Oct.-Dec.) 1933.

Two infants, aged 7 and 9 months, recovered rapidly from erysipelas when treated with filtrate from old Streptococcus cultures. The filtrate was injected intradermally, completely circling the erysipelas. The procedure is based on local tissue immunity, as was first demonstrated by Besredka with his antivirus.

LEMASTER, Evanston, Ill. [AM. J. DIS. CHILD.]

VITAMIN D IN THE TREATMENT OF ECZEMA. M. COMEL, Gior. ital. di dermat. e sif. **76**:89 (Feb.) 1935.

The administration of vitamin D to a group of patients with eczema proved beneficial in Comel's experience. The beneficial influence is explained by the fixation of calcium in the tissues under the influence of this vitamin, which creates a favorable condition for the resolution of the eczematous inflammation. Patients receiving vitamin therapy showed a marked increase in the calcium content of the blood and a decrease in the amount of calcium excreted in the urine.

MODERN CLASSIFICATION OF SO-CALLED BLASTOMYCOSES. PIERO REDAELLI, Gior. ital. di dermat. e sif. **76**:253 (April) 1935.

Redaelli gives a general review of the subject and a critique of the proposed classifications. He "proposes a new systematization, not a new classification." He believes that the group of blastomycoses should be dismembered and the name itself abolished. Redaelli's grouping of these conditions is as follows: (1) rhinosporidium granuloma (due to Rhinosporidium Seeberi), (2) coccidioidal granuloma (due to Coccidioides immitis), (3) paracoccidioidal granuloma (due to Paracoccidioides braziliensis), (4) verrucous chromycetic dermatitis (due to Trichosporum Pedrosoi), (5) the Gilchrist syndrome, or verrucous mycotic dermatitis, (due to Gilchristia dermatitidis and other species), (6) Darling's disease (due to Histoplasma capsulatum), (7) epizootic lymphangitis of solipeds (due to Histoplasma farcinimosum), (8) splenomegalic disease of rats (due to Histoplasma muris) and (9) a number of conditions of the skin and mucous membranes produced by species of Candida, Mycocandida, Mycotorula, Torulopsis, Saccharomyces, Endomyces, Geotrichum, Trichosporum and other organisms.

VITAMINS IN THE TREATMENT OF ECZEMA. M. COMEL, Gior. ital. di dermat. e sif. **76**:283 (April) 1935.

Comel confirms his previous report on the beneficial effects of the administration of vitamin D in cases of eczema. He also states that the lactic acid content of the blood decreases as soon as therapy with vitamin D is instituted.

PARDO-CASTELLO, Havana, Cuba.

ATTEMPTS TO DEMONSTRATE ARSENIC HISTOLOGICALLY IN THE SKIN. M. OPPENHEIM and P. FANTL, Arch. f. Dermat. u. Syph. **170**:488, 1934.

The authors impregnated a piece of skin with arsenic outside of the body. After impregnation with inorganic arsenic they obtained arsenic trisulfide with acid hydrogen sulfide only; after impregnation with arsphenamine they obtained it with neutral hydrogen sulfide in the incubator. They found greenish to egg yolk yellow arsenic trisulfide in colloidal form, which stained the tissue diffusely, but no crystals or amorphous forms. By placing the tissue in an alkaline solution of bismuth they obtained the bismuth sulfide, which is more easily seen. They could not demonstrate arsenic in the tissue of animals or human beings after these had received arsenic. They believe that the melanin in lesions of arsenical melanosis and exfoliative dermatitis contains arsenic.

This work confirms that of Tannenholz and Muir (Methods for Microchemical Demonstration of Arsenic in Tissues, *Arch. Path.* **15**:789 [June] 1933).

BECKER, Chicago. [ARCH. PATH.]

MECHANISM OF THE ACTION OF A SALT-FREE DIET; DISTRIBUTION OF CALCIUM IN THE BLOOD. H. SCHWARTZ, Arch. f. exper. Path. u. Pharmakol. **173**:558, 1933.

A diet free from sodium chloride does not affect the total calcium content of the serum of rabbits but does cause an increase in the protein-bound calcium at the expense of the inorganic calcium. A diet rich in sodium chloride has the opposite effect. These findings are correlated with the anti-inflammatory effect of salt-free diets.

KUGELMASS, New York. [AM. J. DIS. CHILD.]

FURTHER OBSERVATIONS WITH THE MINIATURE CULTURE METHOD FOR FUNGI. H. HRUSZEK, Dermat. Ztschr. **71**:23 (March) 1935.

In a former communication (*Zentralbl. f. Bakt.* [Abt. 1] **132**:378, 1934) Hruszek described a method of preparing a culture medium cell on a microscope slide. He shows that this method is useful in that the gross characteristics of the growth of various fungi can be demonstrated and microscopic observations of the course of growth are possible.

TAUSSIG, San Francisco.

SPECIFIC TREATMENT FOR SYPHILIS AND THE INCUBATION PERIOD (LATENT PERIOD) OF DEMENTIA PARALYTICA AND TABES. P. JOSSMANN, Monatschr. f. Psychiat. u. Neurol. **84**:245 (Dec.) 1932.

Jossmann investigated 734 cases of dementia paralytica and 908 cases of tabes with regard to the relation between the treatment given and the duration of the latent period. He confirmed the frequently stated opinion that with increasing age the period of latency tends to become shorter. This was taken into account in compiling his statistics. All patients were of the male sex. In the great majority of instances mercury was the only drug used. In general, patients who had not been treated showed the longest period between the date of infection and the onset of the neurosyphilis. In the cases in which treatment had been given there was a slight but definite shortening of the latent period. This was greatest in patients receiving the most intensive therapy. However, Jossmann believes that the vast majority of patients had been given insufficient treatment. He therefore con-

cludes that such inadequate therapy is more harmful than complete lack of treatment. A group of 56 patients who had received arsphenamine chiefly or exclusively showed somewhat different results. While the number of cases was too small to warrant reliable conclusions, it was thought that the intensive use of arsphenamine tended to prolong the latent period.

ROTHSCHILD, Foxborough, Mass. [ARCH. NEUROL. & PSYCHIAT.]

INTRADERMAL TEST IN DUHRING'S DISEASE. S. A. GLAUBERSOHN, Przegl. dermat. **29**: 255 (June) 1934.

Glaubersohn removed the serum from a bulla of a patient with dermatitis herpetiformis, heated it to 60 C. for two hours on one day and for one hour on the following day and injected 0.1 cc. intradermally into the patient and into two patients with chronic pyoderma. In the first patient a positive reaction appeared after twelve hours as an inflammatory papule 1 by 1.5 cm., with a small vesicle in the center. After twenty-four hours the vesicle increased to 1.5 by 0.75 cm., and a narrow erythematous areola appeared around it. In the two control patients there was only an erythematous spot. After the reaction in the patient with dermatitis herpetiformis there was marked improvement in his condition.

The blood serum of the patient with dermatitis herpetiformis gave a negative reaction in all three patients. Gonococcus vaccine also gave a negative reaction.

Serum from the bulla mixed with an equal amount of blood serum from the patient produced a small erythematous spot, and a mixture of one part of serum from a bulla with one and a half parts of blood serum gave a negative reaction.

BLOOM, New York.

SKIN CARCINOMA IN A SCAR PROTECTED WITH INSULATING TAPE. W. BÜNGELER, München. med. Wchnschr. **81**:1619, 1934.

Within four months a squamous cell carcinoma developed in a scar (burn) on the back of the hand of a man aged 43. This rapid development is ascribed to the use of tape containing tar. By using benzine as a cleansing agent, the patient had satisfied the conditions for producing experimentally a tar carcinoma of the skin.

AUTHOR'S SUMMARY. [ARCH. PATH.]

GENERAL IMMUNIZATION IN CASES OF BLEPHARITIS AND ECZEMA OF THE LIDS. A. YAKOVLEVA, Sovet. vestnik oftal. **5**:234, 1934.

Yakovleva used autovaccination successfully in twenty-one cases of stubborn blepharoconjunctivitis in which routine treatment was of no avail. About ten injections were made subcutaneously under the clavicle at the rate of one every three days, beginning with 0.1 cc. of the vaccine and increasing the dose by 0.1 cc. at each injection. In one patient with marked eczema of the lids and brows and thickening of the lids the treatment brought about little improvement, while in all others with combined eczema of the lids and of the skin of the face autovaccination produced lasting results.

Yakovleva also experimented with a stock vaccine made of from ten to fourteen strains of staphylococci, five to six strains of Corynebacterium xerosis, three strains of streptococci and three strains of pneumococci. Sixteen patients were treated with the stock vaccine. The results were not as favorable as with autovaccination. The bacteriologic observations on forty-four patients suffering from blepharoconjunctivitis are listed in detail.

O. SITCHEVSKA, New York. [ARCH. OPHTH.]

A CASE OF PELLAGROID CAUSED BY THE INJECTION OF TRYPAFLAVINE. M. MURAYAMA, J. Orient. Med. **20**:66 (May) 1934.

A 6 year old boy received twenty injections of acriflavine hydrochloride because of an inflammation of the right eye. After the last injection an erythematous,

itching eruption appeared on the neck and on the dorsa of both hands. Bullae formed, and a mild desquamation followed. Murayama diagnosed the condition as pellagroid caused by injections of acriflavine hydrochloride.

LeMaster, Evanston, Ill. [Am. J. Dis. Child.]

Studies on the Lymph Glands of Syphilitic Patients: Examination for Spirochaeta Pallida in Macerated Material Obtained by Puncture and by Enucleation of the Lymph Gland. Examination of the Superficial Glands by Palpation. R. Tihara, Hifu-to-Hitsunyo **3**:17 (Feb.) 1935.

Lymph glands of syphilitic patients, usually the inguinal glands, were punctured, and the macerated material was withdrawn and examined under dark-field illumination. Seventy-one and four-tenths per cent of the specimens from patients with the primary, 36 per cent of those from patients with the secondary and 12.5 per cent of those from patients with the early phase of the latent stage of syphilis gave positive results. The results were positive both by the puncture and maceration method and by extirpation and staining by the Levaditi method in the majority of cases in which no treatment had been given. The puncture and maceration method gave positive results in 117 cases; with the Levaditi method the results were positive in 32 cases. Positive results were obtained by the puncture and maceration method on material from patients who had received two injections of arsphenamine, and the Levaditi method produced positive reactions on material from patients who had received twelve injections. Positive results were obtained by both methods in the majority of cases in which there was a markedly positive serologic reaction, and in cases in which the Wassermann reaction was negative but the Murata and Meinicke reactions were positive. In such cases the puncture method when used in the primary stage of the disease gives a high percentage of positive results. The Levaditi method may give positive results in the primary stage, when all the serologic reactions are negative.

In cases in which palpation showed the lymph gland to be indurated the reaction was usually positive by both methods. Since the puncture and maceration method sometimes gave positive results when Spirochaeta pallida could not be demonstrated locally, this method is of special value for purposes of differential diagnosis. These methods, together with the findings obtained by palpation of the superficial lymph glands, are of value in the differentiation between latent syphilis and nonsyphilitic conditions.

The Etiologic Agent of Lupoid Sycosis (Brocq). S. Minami and K. Higuti, Hifu-to-Hitsunyo **3**:175 (April) 1935.

The authors have demonstrated that the causative organism of lupoid sycosis of Brocq is Myceloblastanon Ota. This blastomyces is cultivated from the saliva, gastric juice, feces, vaginal secretions and urine but not from the blood, spinal fluid or ureteral urine. In the authors' three cases it also occurred in the content of pustules which made up the typical manifestations of this condition in the temporal and adjoining region. In all three cases the blastomyces could be demonstrated histologically by the Gram-Weigert staining method.

The authors believe that the organism resides in the gastro-intestinal tract, secondarily invades the vagina and bladder and from there is transferred to the scalp by scratching.

Study of Ceruminous Glands and Cerumen, Particularly of Their Relationship to Axillary Osmidrosis in the Japanese. T. Nagashima, Jap. J. Dermat. & Urol. **36**:690 (Dec.) 1934.

Material for this study consisted of 2,937 clinical cases and of specimens of tissue from the external auditory meatus and from the axillary region obtained at 38 autopsies. Six of these were performed on fetuses of from 8 to 10 months;

1 was made on an infant aged 1 month, and the remainder were performed on patients who were from 15 to 78 years of age at the time of death.

Clinically, as regards the type of cerumen secreted, the Japanese are divided into two groups: Group 1 comprises persons who secrete cerumen which is soft, from yellowish brown to dark brown and more copious than that secreted by persons of group 2. Persons belonging to group 2 secrete sparse amounts of a dry, flaky, grayish-white or at most light yellow wax.

A soft ear wax was found in 467 of the 2,957 clinical cases, and 374 of these patients (83.4 per cent) showed coincidental axillary osmidrosis (bromidrosis). Axillary osmidrosis is practically universal in persons with soft ear wax in the period between the ages of 16 and 40 years. Nagashima's statistics show a complete absence of axillary osmidrosis before the age of 16, even in children who have soft ear wax; however, the axillary apocrine glands are not fully developed before that age. Axillary osmidrosis begins to decrease after the age of 40 and disappears in senescence, and this regression of the condition appears to bear a relation to the atrophy and disappearance of the axillary apocrine glands which begins soon after the age of 40 (Schiefferdecker: *Arch. f. Dermat. u. Syph.* **132:** 121 and 130, 1921).

Histologically the ceruminous glands of the persons in group 1 present a characteristic picture: The gland has a comparatively narrow lumen, comparatively high cells, a swollen, poorly staining nucleus, frequently a cuticular border, a paucity of chromatin, meager mucoid substances, evidences of degeneration and, at other times, regeneration of the cells (secretory phases?) and a lumen filled with cerumen, including the débris of cell protoplasm and nucleus.

In the persons belonging to group 2, on the other hand, the gland has a comparatively wide lumen, low, deeply staining gland cells, a compact, oval nucleus and a paucity in the cell and in the lumen of the material evidence of secretory activity as enumerated for the glands of persons in group 1.

Histologic examination of the specimens of tissue from the axilla disclosed that in the cases in which only axillary hyperhidrosis was present and in those in which the patients were in good health the structure of the axillary apocrine glands more nearly approached that of ordinary sweat glands; however, when axillary osmidrosis was present the histologic picture was practically identical with that of the ceruminous glands of persons in group 1.

LEPROUS ALOPECIA. I. TOYAMA and S. ISHIZU, Jap. J. Dermat. & Urol. **37:**56 (Jan.) 1935.

Changes in the hairy covering of each region of the body were studied in 499 patients with leprosy; 353 of the patients were males, and 146, females. On the whole, falling of the hair is more frequent in male patients; however, it varies for the different regions of the body. The brows and the lashes are more frequently involved in the female patients, or at least the incidence of involvement is about equal for the two sexes. There is more often a loss of the axillary and pubic hair in female patients, and that loss is more complete than in male patients. There is also a difference in the topography of the alopecias of the scalp in the two sexes: in the female patients the baldness usually begins at the hair line in front and extends steadily and uniformly backward, is much more complete than in the male patients and, as a rule, does not extend backward beyond the anterior half of the scalp on top; in the male patients the alopecia is apt to begin along the hair line about the lobe of the ear and to extend irregularly and incompletely upward to the top of the skull and then backward to the occipital region. In some male patients the loss of hair extends down to the hair line on the back of the head, but until late in the disease the strips or streaks of residual hair mark the course of the large arteries. Photographs show characteristic and unforgettable examples.

Practically every patient with nodular leprosy exhibits extensive alopecia, and the same may be said of four fifths of the patients with the macular type of the

disease; in the group with lepra nervorum which comprised four fifths of the entire series, not more than two thirds of the patients exhibited any notable loss of hair.

There was a regrowth of hair in eight of the authors' cases. This occurred most frequently in the hair of the brows and lashes, which is, as a rule, the first to be lost. This regeneration of the hair, however, occurred in the authors' series only in comparatively mild (early) cases of lepra nervorum.

It seems needless to mention that there is no constant relationship between the distributions of the cutaneous lesions of leprosy and the areas of alopecia and that the bald areas may show no evidence of pathologic change other than the loss of hair. When the disease has started before the axillary and pubic hair and beard have grown in, the growth of hair in those regions is apt to be absent or to be meager and poor in quality.

THE NAEGELI, DE QUERVAIN AND STALDER REACTION IN PERSONS WITH TOXICODERMAS. Y. TAKATSUKI, Jap. J. Dermat. & Urol. **37**:114 (Jan.) 1935.

A bit of tissue, consisting of skin which contained lesions of the fixed eruption produced by migrainin (antipyrine?), assumed a dark red color, itched intensely and was the site of shooting pains when a dose of migrainin was administered to a healthy person into whom the tissue had grown fast after heteroplastic transplantation. After being immersed for twenty-four hours in a 10 per cent solution of migrainin, the prickle cell layer of the epidermis lost the prickly appearance; the cells of this layer contained vacuoles, and their nuclei were manifestly swollen or pyknotic. Blister-like formations of varying size occurring between these cells portrayed intercellular edema.

In homoplastic transplantations of fixed eruptions due to arsphenamine the author's results have always agreed with those of Naegeli, de Quervain and Stalder (*Klin. Wchnschr.* **9**:924, 1930), substantiating their contention of the cellular as opposed to the humoral location of the allergic response.

THE WASSERMANN REACTION IN PATIENTS INOCULATED WITH MALARIA ORGANISMS. Y. KOBAYASHI, Jap. J. Dermat. & Urol. **37**:251 (Feb.) 1935.

The Wassermann reaction is said to be frequently positive in patients with malaria. The question was put to test by Kobayashi, who studied the reactions of fifteen patients inoculated with organisms of malaria in the treatment of recent gonorrhea. Murata and Meinicke flocculation tests were carried out simultaneously on the same persons. In every case the Wassermann reaction became positive at some time during the course of the malaria, usually after four or more accesses of fever (about two weeks after the inoculation). The shorter the period of incubation, and the shorter the quiescent periods between accesses, the earlier the positive reaction appeared, at times becoming quite intense (more than ten units of complement) when the period of incubation was short. About one month after the quinine therapy had been started the reaction became negative, although the more intense the Wassermann reaction had been, the more delayed was the negative reaction.

In the forty-four cases in which the Wassermann test was positive the Murata test was positive twenty-three times and the Meinicke test, only five times, the intensity of these reactions varying with that of the Wassermann reaction and disappearing before that of the latter test.

The fact that four of the fifteen patients had previously had syphilis and received antisyphilitic treatment did not seem to influence the results of the tests.

Society Transactions

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

E. William Abramowitz, M.D., *Secretary*

March 5, 1935

R. H. Rulison, M.D., *Chairman*

Lichen Planus of the Scalp. Presented by Dr. Charles Wolf.

L. C., a boy aged 8 years, is presented from the service of Dr. Isadore Rosen at the Mount Sinai Hospital. He first came under observation on Dec. 18, 1934, at which time he had an eruption of the lower extremities and of the forearms. The eruption consisted of discrete shiny papules from the size of a pinhead to that of a split pea. Within the next two weeks, while the patient was under observations, the eruption became quite generalized, lesions appearing on the face, on the forehead, on the scalp, behind the ears and on the trunk. The papules on the anterior surfaces of the legs became markedly hyperkeratotic. Itching was intense.

Local treatment was of no avail. The patient was referred for roentgen therapy, receiving high voltage therapy over the paravertebral region. He received six doses of 75 roentgens per dose to each of six areas; the treatment was begun on Jan. 24, 1935, and ended on February 6, a period of ten days; treatments were two days apart.

The examination of the blood on January 15 showed: red cells, 4,500,000; hemoglobin, 80 per cent; white cells, 12,000; polymorphonuclears, 72 per cent; lymphocytes, 20 per cent; monocytes, 2 per cent, and eosinophils, 6 per cent. On February 25 an incomplete blood count showed 67 per cent hemoglobin and 7,000 white cells. Another incomplete blood count made on March 1 showed 69 per cent hemoglobin and 8,900 white cells.

There was a marked improvement of the entire eruption on February 20, fourteen days after the last treatment. The hyperkeratotic lesions on the legs have undergone involution. At present little remains of the papules of lichen planus. At the sites at which they occurred pigmentation has developed. The eruption on the face and scalp has disappeared.

DISCUSSION

Dr. Howard Fox: I should like to ask whether the presenter saw typical lesions of lichen planus on the scalp, as this is a rare location for that disease. I was able to see only a few scaly spots which looked like ordinary pityriasis. There were also a few scaly lesions on the palms, also unusual sites.

Dr. Charles Wolf: The evolution of the eruption was interesting. When the patient was first seen he had rather a small number of lesions. They were mostly confined to the lower extremities. Within a couple of weeks the eruption spread over the entire body, and the entire face and the scalp became involved. The lesions on the scalp were of a seborrheic type, with a ring lesion depressed in the center and capped with a scale as the primary manifestation. Little reported a few cases of lichen planus of the scalp in children. The outstanding feature in this case was the intense itching. Treatment with arsenic was tried for a short while. In my recommendation to Dr. Rosen I asked to have this child treated by roentgen therapy. The result was amazing; itching ceased promptly, and involution of the extensive eruption occurred rapidly.

PEMPHIGUS TREATED WITH MOCCASIN VENOM. Presented by DR. SAMUEL M. PECK.

D. K., a man aged 31, a Russian Jew, is presented from the service of Dr. Isadore Rosen at the Mount Sinai Hospital. Eighteen months ago a bullous eruption developed on the patient's forearm; two months later the eruption became generalized, consisting of superficial bullae which ruptured and formed a crusted lesion. On Dec. 21, 1933, examination showed numerous bullous and crusted lesions along the hairy border of the scalp and on the trunk and a few bullous lesions in the mouth. The patch test with potassium iodide was negative, and oral administration of potassium iodide caused no increase in the lesions. The blood count at that time was normal.

The patient entered the hospital on Jan. 16, 1934, where he received 4 Gm. of neoarsphenamine in five days, by the continuous intravenous method of Dr. Chargin. Shortly after this new lesions appeared on the arms, legs, scalp, trunk and mouth, and the Nikolsky sign became strongly positive. The injections of venom were begun toward the end of January 1934. The patient was first given 0.1 cc. of cobra venom in 1:800 dilution twice a week. After a month this treatment was discontinued because of lack of improvement, and moccasin venom was given in doses of 1 cc. twice a week. The eruption slowly improved, and by April 28 many of the lesions had disappeared and the Nikolsky sign had became negative. In June the patient still had an occasional vesicle, but he was practically free from lesions and the treatment with venom was discontinued.

At the end of June 1934 injections of a 2 per cent solution of sodium arsenate in doses of 1 cc. were given twice a week, in spite of the fact that the patient was free from lesions, in order to avoid a possible recurrence. No new lesions appeared during August, September and October. By the end of October, in spite of the continuous injections of arsenic new lesions began to appear on the left temple and on the scalp. It was noteworthy that the recurrences always began at the site of the first appearance of lesions. The vesicles quickly increased in number, and lesions began to appear on the trunk. Moreover, several bullous lesions developed in the mouth. In December 1934 the treatment with venom was reinstituted. Doses of 1 cc. were given twice weekly. There has been a slow and steady improvement, and at present the patient is entirely free from lesions except for an occasional crust on the scalp. He is still under treatment with venom at the present time. The phytotoxin test on April 17, 1934, was 55 per cent; on April 28, it was 40 per cent.

PEMPHIGUS TREATED WITH MOCCASIN VENOM. Presented by DR. SAMUEL M. PECK.

H. A., a man aged 35, a Jew born in Rumania, is presented from the service of Dr. Isadore Rosen at the Mount Sinai Hospital. The present condition began in June 1934 with a bullous eruption on the right arm which quickly became generalized. The patient was seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital in July 1934, where the condition was diagnosed as pemphigus. He improved while he was in the hospital. In August, shortly after his discharge from that institution, a bullous eruption developed on the arms, face, cheeks and chin; the eruption somewhat resembled a bullous erythema multiforme, so that members of the staff of the Mount Sinai Hospital disagreed with the diagnosis of pemphigus. When the lesions healed they left areas of depigmentation surrounded by areas of pigmentation. The patch test with potassium iodide was negative, and oral administration of potassium iodide caused no increase of the eruption. In August 1934 the blood count showed a marked secondary anemia with a hemoglobin content of 62 per cent and 8 per cent eosinophils. The eruption at that time was fairly widespread on the arms and on the trunk and face and consisted of large erythematous patches, irregular in size and shape, many of which contained vesicular and bullous lesions. There were no lesions on the mucous membrane.

From early in September to the end of October 1934 the patient was given injections of his own blood twice a week and subcutaneous injections of a 2 per cent solution of sodium arsenate in doses of from 10 to 15 minims (from 0.6 to 0.92 cc.) twice a week. There was no improvement in his condition. The treatment with arsenic had to be discontinued because of the appearance of red blood cells in the urine. At the time of the cessation of that therapy the lesions had greatly increased in number, especially on the extremities, and the eruption had become more generalized.

A biopsy made at the end of October was reported on as showing a histologic picture suggestive of dermatitis herpetiformis, but it was said that erythema multiforme could not be ruled out.

Treatment with venom was begun on Dec. 8, 1934, doses of 1 cc. of the 1 : 3,000 dilution of moccasin venom being given twice a week. There was a slow and continuous improvement until the present time. The patient is now free from any bullous and erythematous lesions and presents areas of depigmentation surrounded by areas of hyperpigmentation at the sites of the old lesions.

The result of the phytotoxin test on Dec. 8, 1934 was 53 per cent, indicating a highly toxic condition.

PEMPHIGUS TREATED WITH MOCCASIN VENOM. Presented by DR. SAMUEL M. PECK.

I. B., a man aged 35, born in New York, of Jewish origin, is presented from the service of Dr. Isadore Rosen at the Mount Sinai Hospital. The first lesions appeared four years ago in the mouth. Shortly after that ocular lesions developed. Early in 1933 the eruption became generalized; it was bullous in character. In July 1933 the patient was first seen by me. He presented the typical picture of pemphigus: bullous lesions in the mouth, on the bulbar conjunctiva, on the trunk and on the extremities. The Nikolsky sign was positive. A patch test with oral administration of potassium iodide gave negative results.

During August 1933 the patient received 108 drops of viosterol daily, but no improvement occurred. After five weeks this treatment was discontinued. In September treatment with arsenic was begun. Mercuric salicylarsenate was given by injection in doses of 1 cc. three times a week, and a concentrate of vitamin A and D and viosterol was given in rather large doses. In the middle of September the patient received 0.3 Gm. of neoarsphenamine twice weekly and arsenic in the form of pills (2 pills) daily in addition to the mercuric salicylarsenate. As there was no improvement after several weeks of treatment he was then given 20 drops of a solution of potassium arsenite three times daily instead of the other arsenical preparation. On Nov. 24, 1933, the result of the phytotoxin test was 66 per cent (borderline reading). On December 13 the condition was definitely worse, and the patient began to complain of pains in the legs and arms and inability to lift the arms, so that the treatment with arsenic was discontinued. At that time he had many lesions in the mouth, lesions on the scalp and on the trunk and a large ulcerative lesion in and around the umbilicus.

All other treatment was discontinued, and on December 17, moccasin venom was injected subcutaneously in doses of 1 cc. of the 1 : 3,000 dilution twice a week. Under this therapy the condition slowly improved. By the beginning of January 1934 the Nikolsky sign had become negative. No new lesions appeared, and the only bullous lesions to be seen were a few on the trunk, on the scalp and around the umbilicus. Treatment with venom was continued, injections of 1 cc. being given twice a week until April. It was then discontinued, and 10 drops of a solution of potassium arsenite was given three times a day. A few weeks after the treatment with arsenic was begun new bullous lesions appeared on the chest, back and scalp, and additional treatment in the form of subcutaneous injections of 1 cc. of a 2 per cent solution of sodium arsenate was given daily. By April 20 arsenical therapy had to be discontinued because the patient again complained of pains in the legs.

Venom was again injected twice a week, beginning on April 21, 1934, and the patient again began to improve. By August injections were given only once a week, and all the lesions had cleared except one around the umbilicus. Treatment with venom is being continued, 1 cc. of the 1:3,000 dilution being given once every ten days or two weeks. In the last six months the patient has had practically no lesions on the scalp, body or mucous membrane. At present he has a crusted lesion around the umbilicus and an occasional crusted lesion on the scalp.

Results of the phytotoxin test were as follows: On Nov. 24, 1933, 66 per cent (borderline); on March 1, 1934, 63 per cent (moderately toxic reading); on Jan. 24, 1935, 51 per cent (three tests showed a markedly toxic condition).

The case may be summarized as follows: The patient had pemphigus of four years' duration which did not respond to fairly large doses of arsenical medication. Treatment with moccasin venom apparently brought about an improvement, but a recurrence set in when administration of venom was discontinued. The phytotoxin test continued to indicate an increasingly toxic condition. Since the lesions recurred when administration of venom was discontinued, it seems that the venom therapy is playing some rôle in preventing the appearance of new lesions, although the pemphigus still seems to be active.

DISCUSSION

DR. A. BENSON CANNON: I think that a case of pemphigus, and especially three cases, in which treatment by any method was successful ought to arouse considerable admiration for the ingenuity of the presenter. It is known that occasionally a patient with pemphigus has a remission or perhaps remains entirely cured, but these instances are rare, and any remedy that gives even temporary relief is worth trying. Granting that the presenter was correct in the diagnosis of pemphigus in each case, one must feel hopeful of the results to be achieved with snake venom. I should like to see a larger group of patients treated with it, and I plan to use it on two who are under my care in the hospital now.

DR. SIGMUND POLLITZER: I think the results obtained in these three cases are remarkable. They are not the results of a haphazard trial, but there appears to be a definite therapeutic plan. Mainly through the experimental work of Dr. Peck it is known that snake venom exercises a definite action on the blood vessels. In many hemorrhagic diseases the hemorrhages cease when small doses of venom are administered. In cases of pemphigus there are no hemorrhages, but there is a leakage of serum, and one can recognize that there is some association between a hemorrhage and a leakage of serum, both being due to some changes in the blood vessels. There is no doubt of the action of snake venom, especially of moccasin venom, on the blood vessels, and this treatment appears entirely rational. In the second place the results obtained are striking. In three cases of pemphigus a few injections administered over a period of a few weeks caused wonderful improvement, and the patients have remained practically free from clinical symptoms for varying periods amounting now to several months. I think this is a valuable contribution. Of course it needs to be verified. One needs a more extensive series of cases, but if the results are verified they mean a splendid addition to the therapeutic armamentarium in cases of a disease which is nearly always fatal.

DR. HOWARD FOX: It is unusual to see at one meeting four patients with pemphigus in whom the condition is greatly improved or possibly arrested. I dislike to throw a wet blanket on Dr. Peck's results, but I must say that in one of his three patients the eruption closely resembled Duhring's disease. There were large numbers of grouped areas of depigmentation and apparent superficial scarring. The patient also stated that he had had severe itching, which does not occur in pemphigus.

DR. B. LAPOWSKI: If the results of Dr. Peck's treatment have been really obtained in cases of pemphigus, then dermatologists have to change their conception of pemphigus. In fifty years of practice I have never seen a patient with real pemphigus cured. Little is known about the life course of a patient with pemphigus because maybe one in a thousand dermatologists see a case of

pemphigus from the beginning to the end and reports. I doubt the diagnosis in these cases on account of the youth of the patients. I wish Dr. Peck would treat an older patient, a man of 50 or 60, with pemphigus and then present his results with snake venom. In other words, the whole conception of pemphigus is wrong if such results can be obtained.

DR. EDWARD R. MALONEY: In the first place, I am sure that Dr. Peck did not intend to present these patients as cured but only as improved. In the second place, I do not think that he intended to have the members infer that all patients with pemphigus would even show improvement with this method of treatment. I know he does not believe that, because he has treated with me three or four patients with pemphigus in whom no improvement occurred. However, in cases of certain types of pemphigus he did obtain improvement. Perhaps the treatment is more efficient in cases of pemphigus occurring in young patients. I think the three patients Dr. Peck and I treated were much older than those presented today. Again, as far as the diagnosis is concerned, I think that in all these cases the Pels-Macht test was positive, and whereas that does not make the diagnosis of pemphigus positive, it certainly is at least corroborative evidence. I am sure that these patients have been benefited, and I am also sure that Dr. Peck does not regard the results as cures and is willing to recognize that in most cases of pemphigus the treatment will not even bring about improvement.

DR. HERMANN FEIT: Dr. Peck should be congratulated. Whether these patients had benign or malignant pemphigus does not make any difference, because both diseases are extremely hard to cure. From his discussion, I do not see how Dr. Lapowski makes a diagnosis of pemphigus in a living patient. All the members have seen patients with that condition get well. I have seen several get well after being treated with methylthionine chloride U. S. P. (methylene blue). Some improve under treatment with arsenic. Some get worse. Some improve after colonic irrigations. How does one make the diagnosis of pemphigus in a living patient? I have presented here several patients with pemphigus, and my colleagues have concurred in the diagnosis. I have sent serum to Baltimore, and the Pels-Macht test has been reported as negative in cases my colleagues and I regard as cases of pemphigus. In other cases in which we thought the condition was dermatitis herpetiformis the test was strongly positive. If the patient gets well does that show that the disease is dermatitis herpetiformis with large bullae or benign pemphigus? I have seen a patient for eight years who got well and whose eruption cleared up under treatment with arsenic. I have never learned from any one how to make the diagnosis of pemphigus. One cannot talk about a disease in which one cannot make a diagnosis while the patient is still alive.

DR. PAUL GROSS: This is such an unusual presentation that one really feels compelled to give the presenter all one's moral support. Every one seems to believe that it is easy to clear up a bullous dermatitis. I have not found it so. Three patients treated at the same time with one remedy and the condition clearing up in all three is something to brag about. There is something that has slipped the attention of some of the members. One patient was treated with snake venom, and then arsenic was given prophylactically in large doses. During the time in which arsenic was given new lesions developed. He was then given snake venom, and the lesions disappeared. If that does not prove the value of the treatment I do not know what will. One patient with Duhring's disease did not do so well. Probably the time is too short to say anything yet about therapeutic results. I wish to bear out one remark made by Dr. Rosen. There is nothing worse than pemphigus in a middle-aged patient. Whenever I see a patient between the ages of 30 and 40 with pemphigus, especially when lesions of the mucous membrane are present, I know that the prognosis is bad, as the course is rapid. I intend to use snake venom in my cases of pemphigus, and, should I have pemphigus myself, I should not want any treatment other than snake venom.

DR. B. LAPOWSKI: Dr. Gross says that the course of pemphigus is rapid. I saw a patient with pemphigus alive six years after the disease was recognized. As

to Dr. Feit's question, I cannot make a diagnosis of pemphigus in a living patient. I can make it only when the patient has died of the disease.

DR. HOWARD FOX: Most of the members will agree that it is not necessary for death to occur to make a diagnosis of pemphigus. While there are no pathognomonic clinical or laboratory signs of the disease, there are many cases of what one feels sure should be called pemphigus vulgaris. I recall one case in a patient seen years ago by many dermatologists in New York in which complete recovery followed treatment by the late Dr. Hemeter with colonic irrigations and vaccines.

DR. E. WILLIAM ABRAMOWITZ: I think that Dr. Peck has made a valuable contribution to the symptomatic treatment of the syndrome or disease called pemphigus. The French for many years have treated pemphigus with ergot and various coagulants. Davis later used iron cacodylate and a blood-coagulating preparation. It is not sufficient for the cutaneous lesions to improve, but there must also be improvement in the general condition, for I have seen cases in which lesions on the skin were disappearing and yet the patient was rapidly going downhill. I want to say that all the present treatment of these conditions is purely symptomatic. I do not think the goal in the treatment of pemphigus will be reached until the cause of the disease has been found.

DR. ADOLPH ROSTENBERG: The age of patients with pemphigus was mentioned. That has interested me a great deal. A few years ago when the use of methylthionine chloride was advocated there were five patients with pemphigus at the hospital. No one could have doubted the diagnosis. In one patient the disease had been present for four years. One came in at about the same time from another hospital. Both were given methylthionine chloride. One was 45 and the other 35 years old. In both the response was satisfactory; in the course of six or eight months the condition cleared up completely. The older patient has since had a recurrence and has died. The younger one is still alive. I do not think that younger patients have more severe types of the disease than older ones.

DR. SAMUEL M. PECK: In view of some of the misstatements which have been made in the discussion of my presentation, I wish to ask the Chairman to grant a little more time for my summary of the cases. It is imperative that the discussers take the time to read the data presented with the patients so as to avoid misrepresentations in their discussion. I am not presuming to present a cure for pemphigus. It was distinctly stated on the charts that these are cases of "pemphigus under treatment with snake venom." Furthermore, I was careful to point out that the patients apparently still had active pemphigus in view of the fact that when the treatment with venom was discontinued the lesions tended to recur. Finally, the reports on phytotoxin tests showed a continued toxic reading. In other words, I tried to make it clear that I was presenting a symptomatic treatment for a chronic bullous disease which had proved resistant to other forms of therapy.

Many other physicians besides me, both at the Mount Sinai Hospital and at other institutions, had classified the cases under discussion as cases of pemphigus. In one of the cases a diagnosis of Duhring's disease had been made by some physicians, and in regard to that case too I was careful to point out that the disease might be a chronic form of bullous erythema multiforme. As far as Duhring's disease is concerned, I have treated with venom two patients with classic examples of that disease, and absolutely no amelioration of symptoms has resulted. The original basis for the use of venom in the treatment of hemorrhagic disease was based on my observation that the venom produced a refractivity to the Shwartzman phenomenon in rabbits (Peck and Sabotka: *J. Exper. Med.* **54**:407, 1931.) Since the Shwartzman phenomenon depends on the production of a local hemorrhagic phenomenon at the site of an intradermal injection of toxin followed twenty-four hours later by an intravenous injection of the toxin, I had a logical basis for the use of venom in cases of pemphigus, because by means of the Pels-Macht test it is known that a circulating toxin is present in cases of pemphigus. This toxin is apparently dermotrophic, because its manifestations are found only in the skin. Since my work with venom has apparently demonstrated that this agent makes

capillaries resistant to toxins, I believed that there was enough theoretical experimental evidence to try venom therapy in cases of pemphigus, in the hope that the circulating toxins would be prevented from reaching the skin. Dr. Fox, Dr. Maloney and I had observed a number of cases of pemphigus in patients over 50, in whom the venom proved of no avail. If one must classify cases of pemphigus according to the age of the patient and call the condition true pemphigus when it occurs in patients over 50 and an entirely different disease when it occurs in patients under that age, such a differentiation is purely arbitrary. Clinically, serologically and by laboratory methods no differentiation can be made. Perhaps in the future it will be shown that the eruptions that respond to venom represent a more benign type of this disease. Darier expressed the belief that Duhring's disease and pemphigus are different conditions, and the response of these diseases to venom therapy seems to support his contention.

I agree with Dr. Lapowski that one may have to differentiate two types of pemphigus: Patients with the first type, usually over 50, are sick with an overwhelming toxic infection. Persons with the other type, usually younger, because of their physical condition are better able to withstand the circulating toxins. The patients with the first type are so overwhelmed by the circulating poisons that venom is useless. Venom is given to make the capillary walls resistant to the circulating toxins. My experience with bleeding patients has shown that this built-up resistance in the capillary walls is not only qualitative but quantitative and cannot act as a barrier to an overwhelming flood of factors causing the clinical manifestations. That this is not purely a matter of the effect of proteins is borne out by the fact that a potent cobra venom proved useless in one of the cases in which it was tried.

Thus I am presenting the treatment with venom not as a curative, but as a symptomatic therapeutic agent. In three cases of chronic bullous eruption, classified as one will, the condition has responded to the venom therapy after all other methods had failed. One man was bedridden in the hospital for months. He is now working and supporting his family. Venom therapy, even if it helps in only a small number of cases, may prove useful. At least it should not be condemned before it is given a thorough and sufficient trial.

PEMPHIGUS (CLINICALLY CURED). Presented by DR. MARION B. SULZBERGER.

F. W., a woman aged 36, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. About five months ago, after an attack of coryza, some "pimples" said by her local physician to be caused by sinusitis developed on the back of the patient's neck. While she was under the care of her local physician in a month's time her body, face, arms and legs became affected with a vesicular eruption. The patient has felt weak and has had a few headaches and chills. Otherwise the past history is irrelevant. There is no history of allergy or of ingestion of drugs. On admission to the hospital the patient showed a vesicular and bullous eruption with lesions generally non-infected and arising from clear skin on the trunk, arms and legs and to a lesser degree on the face. The lesions are from 1 to 15 mm. in diameter and are either clear or filled with serosanguineous fluid. Many dry macules from old vesicles are present. The physical examination gave no other pertinent results. Since the previous presentation a patch test with a 50 per cent solution of potassium iodide produced one large bulla. Nikolsky's sign was positive. The Pels-Macht test was negative. The fluid from a bleb showed 18 per cent eosinophils. The blood count and the results of urinalysis were normal.

In the mouth and epiglottis there were vesiculation and formation of blebs and bullae at various times. The skin has been clear for the past twenty days. After the third treatment with germanin there developed a severe febrile reaction lasting five days, the temperature reaching 105 F. on the first day. Several whole doses of germanin administered previously had been innocuous, and subsequent smaller doses caused no reaction. The patient has been given intramuscular injec-

tions of 3 cc. of a liver preparation biweekly since the febrile reaction, along with biweekly injections of germanin.

DISCUSSION

DR. EUGENE T. BERNSTEIN: The difference between the effects of germanin in this country and in Germany impressed me strikingly. In Frankfort, Germany, remissions that lasted for years followed the use of germanin. It seems to me that germanin, which has quite a complex structure, undergoes a change on its way over here. On being employed in the United States it has quite a deadly effect, and every one has a fear of using it here.

DR. MARION B. SULZBERGER: As Dr. Bernstein has said, germanin causes many severe reactions in the United States. I believe it does so in Germany, too. This patient had a severe reaction from germanin. It has been my experience that one has to stop the treatment with germanin when such reactions occur, because if one does not the patient may die of the germanin and not of the pemphigus. After a few injections of a liver preparation this patient tolerated excessive doses of germanin, and she has had no reactions from these injections. Therefore, I suggest that it may be well to try injections of a liver preparation in order to increase the tolerance to germanin and perhaps to other drugs which, when previously injected, have caused severe reactions.

BLUE NEVUS OR SMALL BLACK MOLE? Presented by DR. EUGENE F. TRAUB.

D. V., a woman aged 27, born in the United States, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. There is a slightly elevated blue-black oval lesion on the right cheek, measuring 2 by 0.5 cm. The lesion has been present since birth and has increased slowly in size. A number of years ago the patient received some applications of acid by a nonprofessional person who, in further treating the spot for some time, picked out a small black mass with a pair of forceps and then decided that the growth had better be left alone. Since that time the patient has received no treatment, but she wishes for advice in regard to removal of the lesion.

This patient is presented for the following reasons: (1) to establish an exact diagnosis; (2) to determine whether the lesion should be removed, and (3) to determine what method should be employed in case removal is considered advisable.

DISCUSSION

DR. SIGMUND POLLITZER: This is evidently a typical blue nevus which was cauterized a few years ago. Nothing happened to it except that there is now a scar added to the blue nevus. The lesion is a form of melanoma. I believe that in this woman, with a melanoma on the face that has been subjected to the severe irritation of cauterization and subsequent scarring, radical treatment is indicated and without loss of time.

DR. EUGENE F. TRAUB: I am sorry that there was not a little more discussion as to the exact diagnosis. I am still uncertain as to whether this is a blue nevus. It may be one, but, on the other hand, one of the reasons this lesion appears more blue tonight is because of the previous cauterization which destroyed some of the overlying normal skin. I do not know how to make the clinical differentiation between a slate black mole and a blue nevus, and yet structurally there is quite a difference between the two lesions. If this is a blue nevus it is not a melanoma. The blue nevus has exactly the same structure as the mongolian pigmented spots. If it becomes malignant it develops into a melanosarcoma, but ordinarily a malignant change is uncommon in this type of nevus which seems to be relatively benign. For this reason it does not need to be particularly widely excised. If, on the other hand, this is a slate black mole it should be widely excised because a slate black mole is a dangerous lesion. When it becomes malignant the growth is a melanocarcinoma or nevocarcinoma. I believe that surgical removal is necessary in this case to get a good cosmetic effect, but if the lesion were anywhere else on the body rather than on the face, I should advise removal with the electrocautery.

MELANOSIS OF RIEHL? ERUPTION DUE TO A DRUG? LUPUS ERYTHEMATOSUS ACUTUS? Presented by DR. MARION B. SULZBERGER.

N. Y., a Chinese man aged 28, born in Canton, China, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. He was presented by Dr. George M. MacKee and Dr. Fred Wise before the New York Dermatological Society on Feb. 26, 1935 (ARCH. DERMAT. & SYPH. **32**:984 [Dec.] 1935).

DISCUSSION

DR. GEORGE C. ANDREWS: I am not satisfied with any of the three diagnoses suggested. I think the possibility of pellagra ought to be considered in this case together with some form of vitamin deficiency. The distribution of the pigmentation on the dorsa of the hands, high on the radial aspects and around the collar somewhat suggest pellagra. The patient looks undernourished, and he may have some vitamin deficiency.

DR. DAVID BLOOM: I wish to suggest the diagnosis of leprosy. I thought I had palpated thickened ulnar nerves and had seen atrophy of the interosseal muscles.

DR. SIGMUND POLLITZER: The possibility of leprosy occurred to me, but I did not find enlarged ulnar nerves or any evidence of leprosy at all, except the pigmentation.

DR. EUGENE F. TRAUB: I wish to say something about the diagnosis of melanosis of Riehl. In the last edition of his textbook Ormsby stated that melanosis of Riehl is probably the same condition as poikiloderma of Civatte. This surprised me much, as most of the cases of Riehl's melanosis occurred in soldiers during the World War while most of the cases of poikiloderma of Civatte occur in women at the age of the menopause. I think one should get a clear conception as to what the clinical picture described by each of these authors really consists of. Certainly this patient does not present a picture that in any way suggests to me poikiloderma of Civatte.

DR. E. WILLIAM ABRAMOWITZ: I wish to venture another opinion, namely, that this is a dermatosis due to light sensitization. I should not be surprised to find that this patient was using some perfume or some similar substance rubbed on the face and hands. The eruption on the dorsa of the hands is not sharply limited, and that on the neck has not the distribution as noted by Casal, in cases of pellagra.

DR. MARION B. SULZBERGER: The diagnosis of leprosy was considered because it had to be ruled out. The histologic examination of several biopsy specimens gave negative results for leprosy; no evidence of that disease was found in the nasal smears, and no bacilli were found in the skin. We then considered the diagnosis which Dr. Andrews has suggested, namely, that of pellagra, and also that of the pseudopellagra which Dr. Maloney has so well described. These were ruled out. There was absolutely no history of concomitant disturbances pointing to pellagra. As to the question of melanosis of Riehl, I am inclined to favor that diagnosis. It is true that Riehl's melanosis is probably only a variant of poikiloderma of Civatte, and this patient presents poikiloderma-like changes, particularly the reticulated lesions around the neck. Furthermore, he did have some hyperkeratoses of the proximal phalanges of the fingers. Dr. Abramowitz' remark that this case might be one of light sensitization would certainly point to the diagnosis of Riehl's melanosis, because that is exactly what Riehl's melanosis probably is; it is probably a light sensitization due to impure coal tar products (hydrocarbons). It was caused during the war in Germany by ingestion of inferior substitutes for fat containing some of these impure distillates of coal tar. Oil workers get a similar condition and automobile workers sometimes get it. As I have stated, the melanosis can also be produced by ingestion of such impure oils or greases. This case may be due to such a factor, and the fact that there are few remaining inflammatory

manifestations is not absolutely opposed to the diagnosis of Riehl's melanosis, because the inflammatory changes dominate only in the early stages. I think the other two diagnoses must be considered also. The histologic examination has not helped much; it showed some hyperpigmentation, slight edema and disintegration of the basal cell layers in an atrophic epidermis.

ROSACEA-LIKE TUBERCULID OF LEWANDOWSKY. Presented by DR. ISADORE ROSEN.

S. S., a man aged 48, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. He first came to the clinic on Feb. 13, 1935, when he presented an eruption confined to the face and more marked over the forehead and malar eminences. There were a diffuse erythema and areas of slight telangiectasia with a few superimposed papules and pustules of pinhead size. The condition developed three years ago and is characterized by periods of incomplete remission.

Histologic examination by Dr. Satenstein revealed the microscopic picture of rosacea-like tuberculid of Lewandowsky.

TUBERCULOSIS FUNGOSA CUTIS (RIEHL). Presented by DR. PAUL GROSS and DR. G. F. MACHACEK.

J. O., a man aged *27*, born in the Philippine Islands, is presented from the Vanderbilt Clinic. He was presented by Dr. Machacek before this Section on Jan. *2*, 1935. He is presented again because the laboratory findings seem to support the diagnosis.

A puncture was made in the lower part of the thigh. Fluid was inoculated into a guinea-pig, which was killed after six weeks and showed both gross and microscopic changes characteristic of tuberculosis. Acid-fast organisms were found in large numbers in the tissues of the guinea-pig.

MIXED TUMOR. Presented by DR. BEATRICE M. KESTEN.

R. B., a woman aged 59, is presented from the Vanderbilt Clinic. For the past four or five years the patient has noted two small lesions on the inner side of the left ala nasi. There has been a slow increase in the size of the lesions. For the last nine months they have caused a perceptible enlargement of the ala. In addition the patient has noted small hard lesions on the face during the past few years.

The left ala nasi is larger than the right. At the outer lower border there is a tumor 1 cm. in diameter which is slightly elevated above the surface of the skin. This is purplish, semitranslucent and coursed by minute blood vessels. On palpation the tumor is firm and nontender, and on the inner surface two distinct nodules are felt in the tumor. On the forehead and in the circumorbital areas are minute, white, hard papules and on the left cheek is one small yellowish glistening papule 3 cm. in diameter.

Clinically and histologically Dr. Machacek made the diagnosis of mixed tumor. A biopsy of material taken from the mucous surface of the tumor was reported on as follows: "These sections of a tumor from the nose show a fibrous mass of tissue with a few attached lobules of fat. Large plaques of epithelium are seen. This is stratified, squamous epithelium and varies considerably. There are nests of cells resembling basal cell epitheliomas. Some cells appear to be squamous and occasionally show 'prickles.' Keratinization has taken place, and a large cyst filled with keratin is seen. Large cuboidal cells line structures which appear tubular. Portions of the fibrous tissue are replaced by mucin due either to degeneration or to secretion. Most of the large cells which line the acini are quite clear. Calcification of epithelium is noted. The best diagnosis which occurs to me is that of a so-called mixed tumor similar in many ways to those described as occurring in the regions of the parotid gland. Diagnosis: mixed tumor of the skin of the nose (adenomyxoma)."

IODODERMA WITH RESULTS OF TREATMENT WITH SODIUM CHLORIDE. Presented by DR. MARION B. SULZBERGER.

M. S., a woman aged 31, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. The patient presented herself at the clinic on Feb. 12, 1935, with a generalized papular and pustular dermatosis. There was a history of ingestion of salt containing iodide beginning four days before the appearance of the generalized eruption. Patch tests with iodides and bromides elicited pustules. A marked improvement has followed local applications of bland medicaments and three injections of 20 cc. of a 5 per cent solution of sodium chloride.

UNUSUAL VARIATION OF HEMOSTATIC DERMATITIS IN A DIABETIC PATIENT. Presented by DR. EUGENE T. BERNSTEIN.

A. S., a married woman aged 72, is presented from the Mount Sinai Hospital. In December 1929 she had a bullous eruption involving the dorsa of the feet and the right forearm; it was diagnosed as erythema multiforme of the hemorrhagic bullous type. The patient has been known to have diabetes for the past ten years. Four years later a distinctly purpuric eruption and some bullous lesions with cloudy contents appeared. The duration was three weeks. The sugar content of the blood is now 250 mg. per hundred cubic centimeters, and the cholesterol content is 250 mg. There have been several recurrences. The lesions have the following evolution:

The primary efflorescence is a pinpoint erythematous area with a central hemorrhagic or telangiectatic spot. There is no pain at that stage. As the lesion enlarges the central area becomes necrotic and painful and occasionally when exudation is pronounced a bullous formation occurs. In the further course there is a scutulous crusting which is extruded, leaving a depressed, almost punched-out area. Striking characteristics are the tendency to occur in crops, the painful element and the occasional formation of hemorrhagic bullous, scutulous crusts. The biopsy showed no evidence of the Urbach-Oppenheim type of dermatosis.

PARAPSORIASIS EN PLAQUES. Presented by DR. CHARLES WOLF.

J. M., a man aged 75, a Russian, is presented from the Mount Sinai Hospital. He states that the eruption on his lower extremities developed five years ago. In the last two years the eruption has spread to the groins, abdomen, chest, arms, axillae and back.

There are variegated colors to the eruption; it is pinkish red on the lower extremities and on the back of the knees and of a faint fawn color on the chest and back. The eruption consists of plaques of bizarre shape and variable size. They are flat and noninfiltrated. Itching is almost negligible.

The section does not show a positive picture of parapsoriasis. There is a lymphocytic infiltration in the upper portion of the cutis with marked vascular dilatation and edema of the collagen. Examination of the blood showed: hemoglobin, 92 per cent; red cells, 5,300,000; white cells, 8,950, polymorphonuclears, 53 per cent; lymphocytes, 36 per cent; eosinophils, 4 per cent, and basophils, 2 per cent. The Wassermann test was negative.

The upper part of the eruption, principally the portion on the front of the chest and back, has been treated with ultraviolet radiation, and marked improvement has occurred.

LUPUS VULGARIS (?) RESEMBLING LUPUS ERYTHEMATOSUS. Presented by DR. SAMUEL M. PECK for DR. I. M. LASHINSKY.

H. E., a man aged 24, single, born in Poland, a student, was seen at the clinic for cutaneous diseases of the Mount Sinai Hospital on Feb. 25, 1935, because of an eruption on the face and body which had existed for about nineteen years.

There is no history of tuberculosis or any cutaneous disorder in the members of the patient's family. He had measles at the age of 5 years, a mastoidectomy at 14, and a tonsillectomy at 20. It is noteworthy that the present condition followed the attack of measles.

The patient is tall, well developed and well nourished; he has lesions on the face, on the right knee and on the left buttock. At first glance the lesions look healed, but closer inspection reveals numerous tubercles. On the right cheek there is a scaly erythematous patch 7 cm. long and 2 cm. wide over the zygomatic region. It is triangular, tapering down to the lower jaw. In this apparently scarred and healed area one can distinguish scattered tubercles at the border. There is also a solitary pea-sized lesion on the right side of the nose, presenting tubercles. On the left side of the face, on the upper eyelid, immediately below the eyebrow and running parallel to it there is an elongated, scaly, erythematous, somewhat atrophic plaque; there is also a small pea-sized scar below the left eyelid. Above the left tragus there is a pea-sized scar. The entire patellar region of the right knee is covered with erythematous and scaly lesions showing much scarring. A similar plaque the size of a silver dollar is seen on the left buttock at its middle and lower quadrant. It is interesting to note that some of the lesions clinically resemble lupus erythematosus.

The patient had received the following treatments before he came to the Mount Sinai Hospital: Scarification in conjunction with pyrogallic acid, which treatment, according to the patient, was the most effective, carbon dioxide snow, roentgen radiation, treatment with the Finsen lamp, injections of tuberculin and of a gold preparation, ultraviolet radiation from a quartz lamp and heliotherapy and electrodesiccation.

The Wassermann reaction of the blood is negative, and the urine is normal. A biopsy specimen was taken from an active lesion but the results of the examination have not yet been reported.

E. WILLIAM ABRAMOWITZ, M.D., *Secretary*

April 2, 1935

R. H. RULISON, M.D., *Chairman*

ERYTHROPLASIA OF QUEYRAT. Presented by DR. B. LAPOWSKI.

M. S., a man aged 38, a salesman, is presented from the Good Samaritan Dispensary. The condition is of about four years' duration. The patient was presented twice before this Section, once with a diagnosis of granuloma inguinale (ARCH. DERMAT. & SYPH. **26**:1124 [Dec.] 1932) and once with that of erythroplasia (ibid. **27**:688 [April] 1933). His case was also reported by Sulzberger and Satenstein as one of erythroplasia (ARCH. DERMAT. & SYPH. **28**:798 [Dec.] 1933).

The patient has received a number of treatments with filtered and unfiltered roentgen radiation, and the entire glans penis has been electrocoagulated. The lesions have, however, all reappeared. At present there is still an active patch larger than a dime on the head of the penis. The condition is considerably improved, but there has been a slight aggravation during the last month. There are no enlarged glands.

ERYTHROPLASIA OF QUEYRAT. Presented by DR. B. LAPOWSKI.

M. E. S., a married man aged 30, is presented from the Good Samaritan Dispensary. He was presented before the New York Dermatological Society on Oct. 24, 1933 (ARCH. DERMAT. & SYPH. **29**:633 [April] 1934), for suggestions as to diagnosis (erythroplasia of Queyrat?). The diagnosis of erythroplasia was accepted. About one month later the lesion was electrocoagulated, but no improve-

ment resulted. About four months later, in February 1934, the lesion was again electrocoagulated with no result.

At present there are a number of pea-sized patches on the glans penis; these lesions are on a level with the skin and sharply outlined. There is no inflammatory areola. The surface is granular and covered with a thin scab, removal of which reveals tiny oozing points. There is no infiltration. In some of the patches there are small islets which are glistening, dark red, dry and velvety.

DISCUSSION

DR. HOWARD FOX: What has been the recent treatment?

DR. ABRAHAM WALZER: The treatment has consisted in avoiding irritation. The lesions have been covered with mild resorcinol paste; in some instances modified calamine lotion, and sometimes only a mechanical arrangement which protects the penis from constant irritation and rubbing of clothes, etc., has been applied.

DR. FRANK C. COMBES: If I recall correctly, these two patients were treated with roentgen therapy and endotherapy. In my opinion the recurrence is due to the fact that the endotherapy was not sufficiently intense. The only further treatment would be to destroy the lesions more deeply, because, after all, I do not think that this condition responds to roentgen therapy, and complete destruction is the only solution of the problem.

DR. B. LAPOWSKI: What does Dr. Combes expect the course to be after the lesions are burned out? There is no reason to believe that carcinoma can be cured by destruction.

DR. FRANK C. COMBES: The problem in these cases is to destroy the lesions completely so that they will not recur.

DR. B. LAPOWSKI: Formerly this precancerous condition on the penis was called dermatitis vesiculosa chronica; the name describes the main symptom of the disease. It begins with a vesiculosis and irresistible itching. This tube device prevents irritation, and by avoiding irritation one may expect at least to postpone for a long time the development of carcinoma.

DR. HOWARD FOX: I think there has been enough experience among European dermatologists to show that erythroplasia, if not treated, ultimately undergoes malignant change. Contrary to Dr. Lapowski's opinion, I believe that destructive methods are indicated. In this case, I think it probable that in one area treatment was not sufficiently intense. I was interested to see that there was no disfigurement as a result of desiccation. This is said to have been noted in a number of cases in which this kind of treatment was used.

DR. MAX SCHEER: I think that the reason for recurrences in these treated patients is not irritation alone but insufficient destruction. I saw the one patient repeatedly at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. He received many different kinds of treatment, including endothermy, but the endothermy was monopolar, and even if one reaches deep enough there are bound to be points left out here and there. No real radical attempt at destruction was made, and I think that that is the reason the patient still has recurrent lesions. In one patient whom I treated at the Skin and Cancer Unit of the aforementioned hospital I removed the entire area with the cutting current. To my knowledge that patient was never had a recurrence. Dr. Sulzberger knows the patient, and he may have seen him recently.

DR. FRED WISE: As mentioned in the presentation, the case of one of the patients presented tonight was fully reported in a recent issue of the ARCHIVES by Sulzberger and Satenstein. Lesions of erythroplasia should be treated radically by means of electrodesiccation, and an effort should be made to destroy them completely, even if the operation has to be repeated on several occasions. Sometimes a moderate grade of deformity of the glans penis results from the operation. This condition is a typical precancerosis, and I vigorously disagree with

Dr. Lapowski's remarks referring to the desirability of gentle and nonradical measures in the treatment of lesions of this character.

DR. J. GARDNER HOPKINS: I have found it difficult to obtain a clear idea of what erythroplasia is. It seems to me that a number of patients with rather different conditions have been presented with that diagnosis. I wonder, for instance, whether any of the members has ever seen a case in which that condition degenerated into epithelioma. I have seen one patient who had been told that he had this disease and in whom the lesions wandered from place to place on the penis. At times one lesion cleared up without any treatment and another lesion appeared elsewhere. I do not think that such a process conforms at all with Queyrat's original description. I am inclined to think that the members are now trying to group many different conditions under this one diagnosis.

DR. LOUIS CHARGIN: I wish to ask Dr. Lapowski the following question: Assuming that these patients are actually suffering from erythroplasia of Queyrat and knowing that in a certain percentage of cases this condition degenerates into epithelioma, why should one temporize when there is now a method of treatment by which one can prevent future prickle cell epithelioma?

DR. MARION B. SULZBERGER: Since this is erythroplasia, I should not like to take the risk of continuing conservative treatment. I have seen at least one case of erythroplasia in which a carcinoma developed, and many more have been described. I should say that in these cases one must try to find the means to destroy the lesion with the minimum of deformity. M. S. was the first patient with erythroplasia treated in America, and my co-workers and I were too hesitant in the use of destructive methods. I did not at that time realize how deep the points were in which there was still precancerous epidermis. In another case, in which Dr. Scheer and I carried out more radical and deeper destructive surgical treatment, moderate deformity has resulted, but it is not sufficient to interfere with satisfactory coitus. And a third patient was treated by me in a similar manner. I have seen these two patients recently, and there has been no recurrence of the condition.

DR. B. LAPOWSKI: There is no reason for believing that carcinoma can be destroyed by destruction. To imagine that it is destroyed by any therapy, by electricity or diathermy, for instance, is a false conception. If the condition is cancer it will recur. I disagree with Dr. Wise in his conception of treating carcinoma of the penis. I doubt whether erythroplasia alone, without irritation, will produce the dreadful event he anticipates.

XANTHOMA TUBEROSUM MULTIPLEX. Presented by DR. B. LAPOWSKI.

R. S., a girl aged 12, is presented from the Good Samaritan Dispensary. She was presented before this section on Jan. 2, 1934, with the diagnosis of multiple keloids (ARCH. DERMAT. & SYPH. **30**:147 [July] 1934. Since then the lesions have increased in number and size. They are scattered over the front of the chest, the back and the abdomen, and a few are present on the arms. They are raised and are of different colors—some are pale, some are dark red and others have a distinct yellowish tinge. They feel hard. Some of them are arranged in lines. Histologic examination of one of the nodules made at another institution before the first presentation was reported to show keloid. A determination of the cholesterol content of the blood showed 345 mg. per hundred cubic centimeters.

DISCUSSION

DR. SAMUEL M. PECK: This patient was presented a number of years ago, when Dr. Highman was still alive. The members may recall his discussion. The histologic description was presented as that of keloids. The discussion at that time, as I recall it, centered about the question whether there was not some xanthoma because of the peculiar color. I maintained that histologically one should certainly have seen suggestive cells and that even without special stains,

with the hematoxylin and eosin stain, xanthoma cells could be easily recognized. I did not believe I saw any change that suggested anything but a keloid-like structure. Dr. Highman also shared that opinion. I must say that now the patient presents classic xanthoma. My only explanation of what I saw is that perhaps these lesions are fibroxanthomas, and the fibrous element was predominant in the lesions which my co-workers and I removed.

DR. SIGMUND POLLITZER: I disagree entirely with this diagnosis, which is based purely on clinical evidence which is, in my opinion, wholly inadequate. The lesions are, for the most part, extremely hard. The shape of the lesions is not that of the nodules of xanthoma tuberosum. The histologic evidence, which is after all most important, showed no evidence of xanthoma, although I understand that the sections were made a year or two ago and the specimen was hardened in alcohol. The distribution of the lesions does not correspond at all to that of xanthomatous nodules. In cases of xanthoma the lesions, where they are numerous, are invariably grouped about the joints where the lipid material is squeezed out from the capillaries and, being deposited in the perivascular region, stimulates the formation of the cells called xanthoma cells. This patient's lesions are all on the back and chest and are entirely absent on the parts most commonly affected in cases of xanthoma. I believe that this is an unusual case of multiple keloids, but a definite diagnosis cannot be reached until a proper histologic examination has been made.

DR. B. LAPOWSKI: In answer to Dr. Pollitzer's statement I wish to say that if one watches the change of the color of the lesion one will be able to exclude keloid. Dr. Wise, when he first saw the patient suggested the diagnosis of xanthoma, and the changes in the color from erythema to a yellowish center with a slight erythematous border surely exclude the diagnosis of keloid. The redness disappears, but the tumor remains, and it always has in the center a discoloration which in the daytime looks like the color of xanthomatous lesions. The absence of the classic localization of xanthoma is not an argument against the diagnosis.

A CASE FOR DIAGNOSIS (PURPURIC AND PIGMENTED LICHENOID DERMATITIS OF GOUGEROT AND BLUM? SCHAMBERG'S DISEASE?). Presented by DR. J. A. TOLMACH.

W. K., a white boy aged 14, is presented from the service of Dr. Oscar L. Levin at the Beth Israel Hospital because of an eruption of three years' duration on the abdomen, thighs and pubic region. The patient is evidently of the hypopituitary type. The lesions are, for the most part, symmetrically disposed and are located chiefly in the pubic region and on the upper parts of the thighs. There are no subjective symptoms. New lesions have been developing slowly and insidiously. The penis, too, is involved with this dermatosis.

The primary lesions are pinpoint-sized and petechial-like; soon after appearing they become surrounded by a small area of yellowish-brown pigmentation. These punctate and yellowish-brown surrounding areas become aggregated to form small patches which measure from 1 mm. to 1 cm. and more. These patches are flat and not scaly at first, but as they develop they show a fine superficial scaling. The older and larger patches are irregular in outline and seem to fade gradually into the surrounding skin. They are distinctly lichenified and slightly scaly and show papules which are from the size of a pinpoint to that of a pinhead, slightly elevated and flat-topped. In the central zones there are evidences of superficial atrophy. There are scattered petechiae and light brown pigmented spots with central petechiae on the trunk. The thighs, forearms and arms show follicular hyperkeratosis and slight xeroderma. There is a peculiar erythematous mottling on the dorsa of the hands.

Microscopic examination gave the following results: The deeper layers of the cutis and the sweat glands were normal except for their participation in the general atrophy. There was a diffuse mononuclear infiltration in the upper

portion of the cutis and in the corpus papillare; it consisted almost entirely of lymphocyte-like cells and histiocytes. The infiltration encroached on the epithelium. The epithelial pegs were mostly obliterated. The basal layer could not be recognized. The horny layer was thick. There were some slight evidences of parakeratosis. The capillaries and lymphatics in the infiltrated areas were dilated. Most of the capillaries contained little or no blood. Occasionally small hyaline thrombi were seen. At one point evidence of a small but diffuse hemorrhage was found. The iron reaction revealed a number of pigment-containing elongated cells in the upper portion of the cutis outside the inflamed area.

DISCUSSION

DR. FRED WISE: I believe that this patient's eruption belongs with the group of vascular cutaneous lesions of the type described by Gougerot and Blum under the name of purpuric and pigmented lichenoid dermatitis. But the absence of papules and pigmentation in this instance tends to exclude the diagnosis mentioned.

DR. OSCAR L. LEVIN: I believe that this patient's case represents one of a large group of cases in which the various conditions frequently reveal certain cutaneous lesions that are all somewhat similar. These similar disturbances, however, have been described under different names. Thus, the same conditions may be observed in cases of acrodermatitis chronica atrophicans, poikiloderma, Schamberg's disease and other disorders.

I was able to make a careful study of the patient presented this evening from my service at the Beth Israel Hospital. Various interesting features presented themselves. The lesions appeared to start as punctate, pinpoint-sized red spots, arising probably from some change in the small blood vessels. There could be discerned, around these original spots, a somewhat larger area of anemia. In the more advanced phases it was found that these areas tended gradually to become purplish and to assume finally a discolored tannish appearance. There was, too, a distinct purpuric tendency. In the larger and older lesions inflammatory changes were observed, as evidenced by the formation of minute papules with secondary scaling.

The patient's eruption presents the features described by Gougerot; that is, there are evidences of dermatitis, of formation of papules, of purpura and of pigmentation. It is my opinion that this disease, which presents definite chronic and laboratory evidences of pituitary dysfunction, is due to a disorder of the pituitary gland.

DR. J. A. TOLMACH: If the eruption were viewed under daylight, the small purpuric and pigmented spots would be quite apparent. It seems to me that this group of angiodermatoses—poikiloderma, Majocchi's disease, Schamberg's disease, etc.—are closely related, and it is possible that they may be variations of a single process. There may be, however, more than one etiologic agent. In this instance the association of the dermatosis with a decided pituitary disturbance points to an endocrine basis for the condition.

GRANULOSIS RUBRA NASI. Presented by DR. J. A. TOLMACH.

D. K., a youth aged 17, is presented from the service of Dr. Oscar L. Levin at the Beth Israel Hospital. The condition is of seven years' duration. Most of the skin of the nose is reddened and shows some vesicles from the size of a pinpoint to that of a pea. The larger vesicles are deep-seated. Minute droplets of sweat are visible on the surface of the nose. The patient suffers from excessive perspiration of the rest of the face. The nose is rather cold to the touch.

DISCUSSION

DR. PAUL E. BECHET: I am glad that Dr. Tolmach presented the patient, as the condition well illustrates the fact that cutaneous diseases have undergone considerable change in appearance in the past twenty-five years. Certain dermatoses seen twenty-five years ago are less frequently observed today, and granulosis

rubra nasi belongs in that group. Despite the fact that I have been engaged in active dispensary practice, I do not recall having seen the condition in the past twelve years, not even at a meeting of a dermatologic society, whereas, twenty-five years ago cases of that disorder were observed occasionally. I can offer no reasons to account for this fact.

Dr. Marion B. Sulzberger: I think this is a remarkable case, the condition being typical in all respects. I have never previously seen the small cystic lesions. I wish to ask Dr. Levin and Dr. Tolmach how they explain these. It seems to me they are due to occlusion of sweat ducts and the subsequent retention cysts. The coldness of the nose, the profuse perspiration and the minute papules are typical. I agree with what Dr. Bechet has said. I have not seen a case like this since I have been in America, that is, in about five years. I think this condition is only slightly less rare in Europe.

Regarding the remarks about changes in the manifestations of cutaneous diseases over a period of years, I am sure these changes exist, though my opinion is based purely on analogy. For any one who wants to read an excellent discussion of the changes in the manifestations of a certain disease throughout the centuries, I know of nothing better than Zinsser's description in "Rats, Lice and History." According to Zinsser, certainly only a small rôle in the development of these changes can be attributed to therapy. Such transformations in the character of a certain disease may be rapid in some cases and slow in others. For example, the virus of variola undergoes a rapid change on passage through the cow. In the laboratory one often sees these changes when micro-organisms are "passed through" animals or subcultured on various mediums.

Dr. E. William Abramowitz: I do not recall having seen a patient with typical granulosis rubra nasi for a number of years. The paucity of cases of this condition in this country may be due to the restricted immigration. The disease is more often described in the foreign literature. It would be interesting to know whether this patient was born in Europe.

Dr. J. A. Tolmach: This is a classic case of granulosis rubra nasi. The condition is rarely seen in this country. I was told that it occurred more frequently in Austria, especially in the period following the World War. It was then considered a tuberculid, and it is still so considered by some European dermatologists. Cysts are not infrequently associated with this condition. When the inflammatory infiltration about the sweat duct is marked, a cyst of the proximal portion of the duct may be produced.

A Case for Diagnosis (Chancre?). Presented by Dr. Oscar L. Levin.

D. F., a woman aged 23, has lesions on the eyelids of eight weeks' duration and lesions on the lip of three weeks' duration. On the left side of the lower lip there is a round lesion the size of a 5 cent piece; it has an elevated, dark yellowish-red border and a central necrotic blackish crust. There is a lentil-sized superficial ulcer on the inner aspect of the lower lip. The upper left eyelid presents a small red healed ulcer and a lentil-sized, firm papule with a central crust.

Dark-field examination gave negative results on March 25, March 27, and April 1, 1935. Examination for Vincent's organism gave negative results. The Wassermann reaction was negative on March 25, 1935. The results of another test made on April 1, 1935, have not yet been reported.

DISCUSSION

Dr. Frank C. Combes: I wish to suggest the diagnosis of pyogenic granuloma. Of course, the first glance at the lesion naturally suggests an initial lesion of syphilis, but there is no adenopathy, and one can hardly conceive of a primary lesion of syphilis on the lower lip without adenopathy. I see no objection to making a biopsy on this lesion. It is possible that a pyogenic granuloma of the fibrous or adenomatous type will be found.

Dr. Charles Wolf: Recently Hoffman described a disease called chancriform pyoderma. I think the description may be applicable to these lesions. The two

lesions on the eyelid have healed without treatment. I think the lesion on the lip will resolve under treatment with wet dressings.

DR. E. WILLIAM ABRAMOWITZ: I think it is important to remember that there is still a possibility that this patient has syphilis, and one should not do anything that would interfere with the results of the dark-field examinations and should persist in making Wassermann tests. I also suggest that material from the lesions be examined for Bacillus crassus. The patient may have a nonspecific ulceration of Lipschütz, which has occasionally been described as occurring in the mouth.

DR. GEORGE C. ANDREWS: The patient said that the skin of her body had not been examined. I think such an examination should be made.

DR. B. LAPOWSKI: In cases of chancre of the lip, the harder the lesion is the fewer are the enlarged glands. In cases of soft chancre enlargement of the glands appears sooner, but in cases of hard chancre occurring separately and by itself the enlargement of the glands develops a good deal later. I agree with Dr. Abramowitz that nothing that might interfere with the results of a dark-field examination should be done in this case.

DR. LOUIS CHARGIN: Although I do not wish to make a definite diagnosis, I believe that the patient presents a primary lesion of syphilis. A primary lesion on the lip is nearly always associated with marked localized adenitis, which is absent in this case. In spite of the negative results of the dark-field examination and Wassermann test at present, one must, on clinical grounds, consider chancre as the most likely diagnosis. I do not think that the patient has tularemia. Patients with tularemia are quite sick, and this patient is not.

DR. HERMANN FEIT: I examined this patient fairly carefully, and she has a definitely palpable submaxillary gland which, I admit, is not much enlarged. I suggest that a dark-field examination of material from this gland be made because, as the members all know, positive findings in material from the mouth do not mean anything, but examination of a gland would settle the whole argument.

DR. MARION B. SULZBERGER: I agree with the members who have said that syphilis must be excluded by a long and careful examination, repeated dark-field examinations and Wassermann tests. I also agree with Dr. Wolf that if syphilis is excluded the disorder may be a chancre-like pyoderma. That diagnosis would cover all the manifestations except the aphthous lesions in the mouth. It would fit in with the impetiginous lesion on the face. My colleagues and I have recently seen a patient with a condition like this at the French Hospital; the patient was presented by Dr. Wise, and the disorder was finally diagnosed as a pyoderma. If syphilis can be excluded, I suggest the diagnosis of chancre-like pyoderma, as illustrated in Ehrich Hoffman's recent article on that subject.

DR. OSCAR L. LEVIN: Clinically the lesion suggests the appearance of a chancre. However, because of the absence of typical adenopathy and spirochetes I do not believe that the condition is syphilis. It impresses me as being due to some unknown type of infection of a protozoal type or possibly to an ultramicroscopic virus such as that which causes chickenpox or typhus.

An examination of the chest, back and upper and lower extremities revealed no cutaneous lesions. There is a moderate adenopathy on the left side of the neck below the lower jaw. Carefully made dark-field examinations gave negative results.

I do not intend to make any biopsies or to administer antisyphilitic treatment.

POIKILODERMA VASCULARE ATROPHICANS (AND ACRODERMATITIS ATROPHICANS?). Presented by DR. ISADORE ROSEN.

R. S., a woman aged 45, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. The cutaneous disorder began about twenty-two years ago. The patient's parents are dead; the mother died of rheumatism and the father of a tumor of the bladder. There are four sisters and two brothers, all of whom suffer from rheumatism. There is no history of any cutaneous disease among them. After a pregnancy the patient was sick

for six years. She was operated on for a disorder of the ovaries and tubes, and just before that operation the cutaneous condition began. The blotches appeared simultaneously all over the body. Just before they appeared the patient had a burning sensation in the affected areas. Eight years ago she was operated on at the Jewish Memorial Hospital for fibroma uteri, a postoperative menopause resulting. The cutaneous condition remained static until about six months ago, when an itching and a burning sensation commenced on the feet. The patient has had three attacks of neuritis, one attack in the right arm and two in the left arm.

The patient is stout; she has a struma and slight exophthalmos. On the trunk, especially on the breast, and on the thighs there are large regions where the skin is atrophic and thin and exhibits telangiectases and reticulated vessels. On the back there are similar lesions, but fewer vessels are present. In some patches there are scattered pinhead-sized papules. Some of the lesions on the breast and back are not atrophic but sharply defined and reddish. There is slight scaling. The elbows and knees are free. Both feet show similar lesions, with reddish inflamed skin and much scaling, which is partly crusty. There is no marked atrophy of the skin of the feet.

The urine contained no albumin and no sugar. The differential blood count showed 54 per cent polymorphonuclear leukocytes, 38 per cent lymphocytes, 5 per cent monocytes and 3 per cent eosinophils. Cultures and microscopic examinations of the skin of the toes and feet for tinea gave negative results.

A biopsy specimen from the left breast showed in the subepidermal region groups of vessels more or less of the same size; the lumens were dilated, and about them there was a sparse small round cell infiltrate. Some of the vessel walls were somewhat thinned throughout the cutis. There was marked parenchymatous edema. The epidermis was thin, and the rete pegs and the papillary bodies had disappeared. The elastic tissue showed considerable fragmentation and absorption. The diagnosis, as based on the microscopic examination, was poikiloderma vasculare atrophicans.

DISCUSSION

Dr. Fred Wise: I believe that all the cutaneous changes which the patient exhibits are manifestations of poikiloderma and that the diagnosis of acrodermatitis atrophicans may well be excluded.

Dr. Oscar L. Levin: I think that the lesions which the patient presents correspond to those which I observed in cases of acrodermatitis atrophicans and poikiloderma vasculare atrophicans. The picture she presents suggests that exhibited by another patient whom I observed at the Montefiore Hospital. The case was first reported by Dr. Cushing as his first case of basophilic adenoma of the pituitary gland. The cutaneous lesions observed in such cases usually occur on the breasts and extremities. Undoubtedly this patient shows evidences of pituitary disease.

Dr. J. Gardner Hopkins: It seems to me there is a striking similarity in the cutaneous lesions of this patient and those of one whom Dr. Levin and Dr. Kesten previously presented before this section with the diagnosis of basophilic adenoma of the pituitary gland, which, I believe, was definitely proved to be correct. I do not think that any one can say after as casual an inspection as one can make here that this patient has a basophilic adenoma of the pituitary gland. However, she has the same type of adiposity, and she has kyphosis and glycosuria. She does not have the typical facies with hirsuties and cyanosis. A great deal more study would be required to make a definite diagnosis. However, I think it would be extremely interesting to investigate this case, and it seems to me that, as far as one can see tonight, the patient has many of the symptoms of a basophilic adenoma.

Dr. Hermann Feit: I have great regard for the opinion Dr. Wise has expressed. Among other diagnoses offered was that of lupus erythematosus. I am also well aware that many of the characteristics of Cushing's basophilic adenoma are lacking. An author in London, England, has reported that in making biopsies

in these cases examiners were impressed by the fact that when the skin was cut it had the feel observed in cases of scleroderma. The linear atrophies and the scleroderma-like skin, I think, are important. I agree that all these peculiar atrophies fall into the group of so-called endocrine disorders, with all the mystery that goes with them.

DR. ISADORE ROSEN: I presented this patient with the diagnosis of poikiloderma vasculare atrophicans and acrodermatitis atrophicans, the latter diagnosis being questioned. I agree with Dr. Wise that the two conditions are probably one and the same process and belong to the idiopathic atrophies of the skin. I also agree with those who believe that these conditions probably are due to some endocrine disturbance.

A CASE FOR DIAGNOSIS AND SUGGESTIONS AS TO THERAPY (POIKILODERMA?). Presented by DR. BEATRICE M. KESTEN and DR. PAUL GROSS.

M. A., a woman aged 46, is presented from the Vanderbilt Clinic, to which she was referred on Jan. 9, 1935, for diagnostic study by Dr. R. A. Schaaf. The eruption is of ten years' duration and is located on the extremities, in the infraclavicular region and in the mouth.

Ten years ago the patient first noted intensely itchy red spots on the elbows and legs. These gradually spread outward and scaled slightly. Then the entire legs and arms began to itch intensely, and more red patches appeared. The unbearable itching has persisted and is aggravated by excitement, heat and wool clothing. The skin in the affected areas has become harder. In the last two years the skin over the legs has taken on the present appearance. The patient had hives from childhood until two years ago. She had not noted the lesions in the infraclavicular region. The general history is irrelevant except for the fact that the patient states that her hands have increased in size and that when she is reading parts of words fade out.

On superficial examination the lesions on the legs have the appearance of a healed roentgen dermatitis. On closer inspection it is seen that from the knee to the toes there is a diffuse reticular atrophy with telangiectasis, which is more marked on the right side. The skin is hairless and nonscaly, and there is no plugging of the follicles. It is smooth except for a slightly elevated ring of flat reddish papules about the left internal malleolus. On close inspection one can discern annular lesions with white atrophic centers and a border consisting of reddish and brownish punctate lesions and telangiectases; some of these lesions are the size of a dime. In between there is normal skin which shows slight thickening and scattered telangiectases. Over the knees the skin is thinned, but no superficial veins are visible. On the thighs are a few excoriations, red macules and small atrophic spots. On the arms, particularly on the flexor surfaces, there is a diffuse nonerythematous lichenification with induration. In the infraclavicular region there are small symmetrical patches of guttate atrophy. The mucous membranes are not involved, except for one small hemangioma on the lip.

General physical examination gave negative results except for the fact that the left eye showed a small area of chorioretinal depigmentation in the nasal field. The blood pressure was 116 systolic and 70 diastolic. Cutaneous tests gave negative results except the tests with wool, the results of which were doubtful.

The blood count showed: hemoglobin, 92 per cent; red cells, 5,900,000; white cells, 10,600, with 50 per cent polymorphonuclear leukocytes, 24 per cent small lymphocytes, 9 per cent large lymphocytes and 17 per cent eosinophils. The Wassermann reaction of the blood was negative. The sugar, the nonprotein nitrogen and the carbon dioxide content of the blood were normal, and the urine was normal. The basal metabolic rate was + 12 per cent. Roentgenograms of the chest, sinuses and skull showed normal conditions.

The report on the biopsy was as follows: The sections show a slight hyperkeratosis and edema of the epidermis. The corium, however, is the site of interesting changes. The papillary layer and superficial part of the reticulum show

numerous small capillaries, many of which are dilated. The corium appears "washed out." Foci deeper in the corium occur where there are numerous thick-walled vessels. These are often surrounded by fibrillar cellular tissue. Large tortuous vessels are seen. An occasional red blood cell is seen outside of these. Often the collagen bundles are degenerated and fragmented. About some of the vessels definite focal scars (?) or infiltration of leukocytes are seen. Many of these are eosinophils, with a few polymorphonuclears. The lesion is of a vascular type. Changes such as these are often seen in varicosities, but they undoubtedly are consistent with a diagnosis of purpura annularis telangiectodes. A stain for iron disclosed no appreciable amount of this substance. A stain for elastic tissue showed that the elastic tissue seemed to have undergone degeneration in the papillary corium and in some areas where the blood vessels appeared to have proliferated (Dr. G. F. Machacek).

During the past ten years the patient has been seen by several dermatologists. They have consented to give us their diagnoses. Dr. Henry Wallhauser, who first treated the patient about eight years ago and who again saw her a month ago, wrote: "Her condition now presents the classic features of parapsoriasis lichenoides of the Juliusberg type. . . ." Dr. E. Dulin in March 1932 made a diagnosis of neurodermatitis (disseminated type). Dr. G. C. Andrews in October 1933 made a diagnosis of lichen planus atrophicus. At the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, in April 1933, a clinical and pathologic diagnosis of scleroderma was made. Dr. Eugene Traub presented the patient at the April meeting of the New York Dermatological Society (ARCH. DERMAT. & SYPH. **28**:740 [Nov.] 1933).

During the past ten years the patient has been subjected to a number of cutaneous tests and local applications. She also received seven roentgen treatments consisting of ¼ skin unit (75 roentgens) of unfiltered radiation in 1932, and has received injections of gold sodium thiosulphate.

At the staff conference of the Vanderbilt Clinic in February 1935 no definite diagnosis was made, but the following diagnoses were suggested: Poikiloderma vasculare atrophicans, chronic eczema with poikiloderma-like changes, purpura annularis telangiectodes and poikiloderma-like changes associated with pituitary or other endocrine disturbance.

DISCUSSION

DR. FRED WISE: There is a good colored plate of Majocchi's disease accompanying an article on purpura annularis telangiectodes by Pasini, to which I refer Dr. Gross. It was published about fifteen years ago (*Gior. ital. d. mal. ven.* **48**:13, 1913).

DR. MAX SCHEER: One of the most extensive articles on the subject was published by MacKee (*J. Cutan. Dis.* **33**:129, 186 and 280, 1915). That article, to which I refer Dr. Gross, covered every detail.

POIKILODERMA (CIVATTE)? Presented by DR. BEATRICE M. KESTEN.

M. G., a woman aged 40, is presented from the Vanderbilt Clinic because of an eruption on the neck of one year's duration. On the neck, except for the diamond-shaped area under the chin, is a band of symptomless persistent redness with slight yellowish brown pigmentation at its upper and lower borders. The normal cutaneous markings are increased, and the redness largely follows these markings. In the skin over the anterior cervical triangle there is definite telangiectasis. There is no atrophy or infiltration.

DISCUSSION

DR. PAUL E. BECHET: I questioned the patient carefully, and she states that she has frequently been exposed to the rays of the sun for prolonged periods. I have found that there was a similar history in the case of patients recently presented with the same diagnosis. In my opinion the dermatosis under discussion belongs to a group of chronic polymorphic actinic eruptions similar to Riehl's

war melanosis and Jadassohn's cutis rhomboidalis nuchae. All these eruptions are variants of an actinic dermatitis caused by repeated and prolonged exposure to the sun's rays. If this opinion proves to be correct, the use of the term poikiloderma is unfortunate, as the condition is likely to be confused with another entirely different cutaneous disease, namely, poikiloderma vasculare atrophicans. If one is fond of eponyms the condition could still be called Civatte's disease.

DR. MAX SCHEER: I agree with Dr. Bechet's opinion that this disease is due to exposure to actinic rays. The patient is a woman about 40 years of age who worked in the fields up to six years ago. She has had considerable exposure to the rays of the sun, and she has the condition known as sailor's or farmer's skin.

DR. FRANK C. COMBES: I agree with what Dr. Bechet and Dr. Scheer have said regarding this patient. However, this is the third patient I have seen whose disorder has been diagnosed as poikiloderma of Civatte, and in none of them have the manifestations followed exactly the description which Civatte originally gave and which appeared in the *Annales de dermatologie et de syphiligraphie* (**4**:605, 1923). In Civatte's original case the lesions began on the forehead and spread down on the cheeks. The regions about the eyes and mouth remained clear. The lesions then extended down on the neck and in some cases down on the arms. There was poikiloderma in his cases. I saw none in this patient. Civatte described the reticulated appearance of the skin with small erythematous patches, varying up to 1 cm. in size, surrounded by a reticulated area measuring a few millimeters. The lesions, according to Civatte, underwent atrophy, and some pigmentation and telangiectasia appeared in them. From his description the condition was a true poikiloderma. I have not seen this in any of the cases that have been reported recently in this city.

IDIOPATHIC MULTIPLE PIGMENT SARCOMA (KAPOSI). Presented by DR. B. LAPOWSKI.

M. M., a married man aged 45, a tailor, is presented from the Good Samaritan Dispensary. He has never been sick, and the past history is unimportant.

The first lesion appeared about nine months ago on the inner aspect of the left thigh, and new spots gradually extended to other locations. The patient has received only local treatment. His chief complaint is pruritus. The lesions are located on the extremities, and on the trunk. The face and scalp are free from lesions. The process apparently began as an erythema and later became infiltrated and violaceous and in some places verrucous. Many of the lesions disappeared, leaving brownish pigmented patches which are on a level with the skin. Some of the patches show all stages of development. There are scattered patches which are discoid, circular or crescentic, irregularly arranged, well defined and of a dusky purplish color. Some of them show areas of brown pigmentation. These patches vary in size from that of a dime to that of half a palm. The brown pigmentations and the violaceous areas on the hands and feet are on a level with the skin; the purplish red areas on the trunk are slightly elevated, and those on the front of both axillae are markedly elevated and infiltrated, hypertrophic, verrucous and raised up to 1 inch (2.5 cm.) or more. The surfaces of the latter are cracked, and the patches in the right axilla are slightly abrased. Some of the patches show the combination of all these various types of lesions.

The feet and the hands show violaceous erythematous areas of various sizes, but infiltration is noticeable only on some of the toes. The mouth is free from lesions. The glands are barely palpable. General physical examination showed no enlargement of the liver or spleen and no mediastinal glandular masses. Examination of the blood revealed a leukocytosis, the number of leukocytes being 16,700, with 44 per cent lymphocytes.

DISCUSSION

DR. ISADORE ROSEN: If I had not seen the record of the history I should unhesitatingly have made a clinical diagnosis of mycosis fungoides. Clinically this patient presents the classic textbook picture of the various stages of that disease.

There are plaques, infiltrations and tumors. It is possible that the lesions on the feet are those of Kaposi's sarcoma. A histologic examination would be needed to verify this diagnosis.

DR. LOUIS CHARGIN: I agree with Dr. Rosen. The clinical picture is certainly that of mycosis fungoides. I wish to point out particularly the bizarre lesions on the arm similar to those seen in cases of that disease and not in cases ot Kaposi's sarcoma.

DR. HOWARD FOX: In my opinion this is a classic case of mycosis fungoides in the infiltrative stage.

DR. FRED WISE: The presence of Dr. C. Guy Lane tonight reminds me of a case described by him and Dr. Greenwood (ARCH. DERMAT. & SYPH. **27**:643 [April] 1933). Their patient had Kaposi's sarcoma concomitant with mycosis fungoides; there were also changes in the blood suggestive of leukemia. I believe that the lesions on the toes of Dr. Lapowski's patient are in all probability a manifestation of Kaposi's sarcoma, while those on the trunk certainly resemble mycosis fungoides.

DR. C. GUY LANE, Boston (by invitation): This patient's case is entirely different from the case which Dr. Greenwood and I reported. It seems to me that the picture presented by the lesion on the toes of the left foot together with the lesion a little higher up on the left leg of this patient is consistent with the diagnosis of Kaposi's sarcoma. On the other hand, I believe that the lesions on the body, those in the axillae and those on the abdomen and back are typically lesions of mycosis fungoides. In the case which Dr. Greenwood and I reported there was a typical history of mycosis fungoides extending over a period of approximately four years; the disease passed through the prefungoid stage, and eventually there developed typical tumors, for which the patient received extensive roentgen treatment. Then there appeared on the feet small, dome-shaped, round, nonpigmented tumors which grew rapidly in number and size, so that before the patient died it was almost impossible to distinguish the toes. The tumors gradually extended up the leg. Earlier biopsies had confirmed the diagnosis of mycosis fungoides. Biopsy on these tumors showed changes typical of Kaposi's sarcoma with considerably less pigmentation than usual. In addition, in sections taken after death one observed in the same section at one end the picture of Kaposi's sarcoma and at the other end the typical picture of mycosis fungoides. In addition, that patient also had a moderately increased lymphocyte count. It is interesting to note that in that case the patient had received high voltage roentgen treatment at a distance, the so-called "spray" treatment. My co-workers and I have seen two patients with mycosis fungoides treated in this way in whom as a terminal symptom there was a marked and extensive swelling of the whole body. In two other cases in which we have used this type of high voltage therapy the condition cleared up rapidly for a time.

DR. B. LAPOWSKI: All I can say is that the article by Dr. Lane and Dr. Greenwood suggested to me that I change my diagnosis. I still say that this patient's disease is Kaposi's sarcoma. There may be another disease present. There is no leukemia.

LIPOMATOSIS (ADIPOSIS DOLOROSA). Presented by DR. G. F. MACHACEK.

S. G., a woman aged 40, is presented from the Vanderbilt Clinic because of a condition on the lateral surfaces of both feet and on the soles of several months' duration.

There are soft nodular yellowish and reddish cutaneous and subcutaneous lesions which on palpation have a doughy consistency. The patient complains of pain and tenderness. The clinical diagnosis is lipomatosis. Apparently the patient had had a generalized eruption which was interpreted as a rash caused by bromide. The patient states that about sixteen years ago, after the birth of her first child, within a period of six months her weight increased from 126 to

220 pounds (57.2 to 99.8 Kg.). In October 1932, she received glandular therapy, and her weight decreased to 187 pounds (84.8 Kg.), but it gradually increased again to 242 pounds (109.8 Kg.). The blood pressure has been 210 systolic and 130 diastolic. The basal metabolic rate has been from + 4 to + 25 per cent. Roentgenograms of the sella turcica showed normal conditions. The various diagnoses which have been made have been adiposis dolorosa, hypertension, adiposis of the heart, hyperplasia of the endometrium and bilateral xanthomas of the upper eyelids. A lipectomy of the abdominal wall was performed, and 8.18 pounds (3.62 Kg.) of fat was removed. A biopsy of the lesion excised from the foot proved the lesion to be a small lipoma.

TUBERCULOSIS AND TUBERCULID. Presented by DR. OSCAR L. LEVIN and DR. SEYMOUR H. SILVERS.

E. D., a Negro aged 22, is presented from the Sea View Hospital. Sore throat, hoarseness and enlarged cervical glands on the left side were first noticed during January 1930. Later the glands on the right side of the neck began to swell. They were hard and large and showed no tendency to suppuration. A private physician incised the glands on the left side, and the process of healing was slow.

The patient then went to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of an ulceration of the mouth. A biopsy of material from the right tonsil was made, and the diagnosis was tuberculosis. In May 1931 the patient was referred to the Beth Israel Hospital because of hoarseness. He received radiation therapy for an infection of the throat. He complained of soreness in the nose. There was no evidence of any external manifestation for two months, and then a few papules were noticed on both alae and on the midline of the nose. They became ulcerated and encrusted. The papules coalesced and formed a large encrusted mass involving the lower portion of the nose and the adjacent portion of the lip. The patient went to the Bellevue Hospital, where he received intravenous injections of a gold preparation, but no improvement occurred. He was admitted to the Sea View Hospital in May 1933.

When I first saw the patient, in May 1933, there was an egg-sized crusted mass involving the soft parts of the lower half of the nose, the upper lip and the adjacent part of the face. This mass was irregular and composed of firm and loose adherent crusts surrounded by a dark red, edematous, doughy area which was slightly tender. When the crusts were removed an irregular granulating, bleeding grayish-red surface was exposed. The lower soft part of the nose was destroyed by the ulcerated mass. On both sides of the neck were irregular, hyperpigmented scars, varying in diameter from ¼ of an inch to 2 inches (0.64 to 5.08 cm.), resulting from former lesions. The patient was hoarse. The tonsillar regions and soft palate showed irregular, puckered ulcers from the size of a pea to that of a dime and areas of irregular scarring.

The patient is a well developed Negro; he appears healthy except for the lesions in the mouth and nose. Physical and roentgen examinations of the chest disclosed no evidence of tuberculosis. The sputum was reported to contain no acid-fast organisms, and the urine was normal. The Wassermann and Kahn tests were negative. Roentgen examination of the larynx and spine showed a retropharyngeal cold abscess with a carious focus in the third cervical vertebra and possibly an early stage of tuberculous involvement between the fifth and the sixth cervical vertebra. There was an extensive tuberculous lesion involving the laryngeal cartilages. There were no calcified deposits in the larynx. Motility of the larynx was normal. A test with 0.1 cc. of tuberculin in a 1:1,000,000 dilution showed a large infiltrated edematous plaque the size of a half-dollar which remained active for over a week. A diagnosis of tuberculosis ulcerosa cutis, tuberculosis of the bone and tuberculosis of the soft palate and larynx was made.

Treatment consisted of generalized, ultraviolet irradiation with an air-cooled, and of localized irradiation with a water-cooled, quartz mercury vapor arc lamp—the latter treatment being applied to the nose and throat three times a week—and

application of wet dressings of boric acid and potassium permanganate, plus the use of various mouth washes. In addition, internal treatment has consisted of oral administration of cod liver oil and calcium preparations and of a dietary regimen for tuberculosis, as administered in the hospital. While this patient was in the hospital he received a salt-free diet for six months but showed no more than the usual amount of improvement.

Specimens for biopsy were taken from lesions in the mouth, throat and nose; those from the lesions in the mouth and throat were reported to show tuberculosis; the specimen from the lesion in the nose suggested the possibility of epithelioma, although it also showed evidence of tuberculosis.

In October 1933 a pea-sized dark red infiltrated lesion developed about ½ inch (1.27 cm.) below the left eye. Within a week it attained the size of a dime and exhibited a central crust and a dark red edematous border. When the crust was removed a crater with a wet, granulating base became visible. In spite of treatment this lesion persisted. Section of the lesion showed a picture typical of tuberculosis.

In February 1934 the patient presented a generalized eruption consisting of dark red lesions from the size of a lentil to that of a pea with necrotic centers. These lesions were located mostly on the extensor surfaces of both upper extremities and on the thighs, but there were some on the abdomen and trunk. On the shoulders and chest and over the rest of the body there were grouped slightly inflammatory, scaly but shiny follicular papular lesions, appearing in island formation. Two days before the appearance of this eruption there was an elevation of temperature of from 1 to 3 F. Within six weeks this eruption had entirely disappeared, leaving superficial scarring with hyperpigmentation on the extensor surfaces. The following diagnostic verdict was rendered: The eruption was that of hematogenous cutaneous tuberculosis of the tuberculosis lichenoides type (lichen scrofulosorum) and tuberculosis papulonecrotica.

The patient gradually improved and was transferred to the outpatient department. At present there are no active lesions except on the nose. His skin is now free from crusts and shows irregular, erythematous hypertrophic areas which are healing. The lesion below the left eye is violaceous, dime-sized and ill defined and has a crusted border.

LUPUS VULGARIS MUTILANS. Presented by DR. OSCAR L. LEVIN and DR. SEYMOUR H. SILVERS.

E. C., a woman aged 24, is presented because of an eruption of fourteen years' duration, which first appeared as a small papule on the side of the nose. This ulcerated and spread inside along the mucous membrane of the nose and continued to spread outward along the cheek, finally extending along the entire skin of the face and neck. Since 1924 the patient has had difficulty in seeing. The interference with vision grew worse until 1934, when she was unable to see with her left eye. She was admitted to the Sea View Hospital in December 1932, at which time she had an extensive pigmented violaceous eruption consisting of nodules, scars and ulcers, which involved the entire face and extended to the forehead. The lips were swollen and covered with crusts which bled easily when lifted off. Along the border of the lesions were numerous nodules from the size of a pinpoint to that of a pea which coalesced and were soft to the touch. There were ulcerated lesions on both sides of the nose and lips, and on the left side of the buttocks there was a large lesion covered by crusts. Roentgen examination of the chest showed productive changes at the roots of both lungs and proliferative changes in the infraclavicular regions. Examination of the sputum and the Wassermann test gave negative results, and the urine showed only a faint trace of albumin.

The tissues from the nasal septum, from the skin of the leg and from the right side of the nasal septum were studied for evidence of pathologic changes. All the specimens showed tuberculosis. A test with tuberculin in a 1:100,000 dilution resulted in a marked infiltration lasting for more than two weeks. Treatment has consisted of administration of a Gerson diet, ultraviolet irradiation to the face and involved surface, and application of boric acid ointment to the mouth

and nose. An ointment containing 20 per cent pyrogallol has been applied to the face, and 25 mg. of triphal has been given intravenously.

LICHEN NITIDUS. Presented by DR. PAUL GROSS for DR. HELEN OLLENDORFF CURTH.

C. M., a Negress aged 26, is presented from the Hospital for Joint Diseases, because of a generalized eruption of ten months' duration. As the patient had a positive Wassermann reaction, antisyphilitic treatment was instituted three years ago, but on account of intolerance to arsphenamine this was discontinued one year ago. The last injection of a bismuth preparation was given in July 1934. While the patient was still under treatment the present eruption developed, but it continued to spread even after the antisyphilitic treatment was discontinued. The eruption is only slightly itchy.

There are groups of discrete almost symmetrical lesions on the sides of the neck, on the shoulders, in the antecubital regions and on the inner aspect of the thighs. There are also scattered lesions on the flexor surfaces of the forearms and arms. The individual lesions are shiny round or polygonal pinhead-sized papules lighter than the normal skin and presenting a central umbilication. There is no coalescence except in several marks of scratching where the papules show a linear arrangement. The mucous membranes are free except for a slight evidence of the Fordyce disease. The Wassermann and Kahn reactions were 1 plus.

The report on the biopsy was as follows: In the papillary portion of the corium, just beneath an atrophic epidermis, there is a localized mononuclear infiltration. A dilated blood vessel can be seen at the base of the infiltration. In one place there is a conglomeration of nuclei suggesting an atypical giant cell. At one side of the infiltration an elongated rete peg and slight hyperkeratoses are present.

PSORIASIS OR DERMATITIS MEDICAMENTOSA? Presented by DR. FRANK VERO.

F. Y., a man aged 23, born in the United States, is presented from the New York Polyclinic Medical School and Hospital. He was presented before this section at the meeting in February 1935 (ARCH. DERMAT. & SYPH. **32**:966 [Dec.] 1935). In the discussion both psoriasis and psoriasiform syphilid (recurrent) were considered. Suggestions as to dark-field examination, a Wassermann test and biopsy were carried out. Dark-field examinations of material from lesions on the penis and neck gave negative results. The Wassermann and Kahn reactions were 3 plus. The results of the biopsy were reported to be suggestive of syphilis rather than of psoriasis. Since the previous presentation this patient has received nine injections (1.8 Gm.) of silver arsphenamine. Most of the lesions have disappeared or have undergone involution, except the lesions on the penis, which show large red-brown, slightly infiltrated, scaling plaques apparently spreading at the periphery. On the right forearm (the site of the removal of material for biopsy) there is a red-brown patch which scales persistently. In the past few days new slightly infiltrated and nonscaling round red lesions the size of a dime have appeared on the palms.

MANHATTAN DERMATOLOGIC SOCIETY

MIHRAN B. PAROUNAGIAN, M.D., *Secretary*

March 12, 1935

PAUL E. BECHET, M.D., *Chairman*

A CASE FOR DIAGNOSIS. ROSACEA-LIKE TUBERCULID OF LEWANDOWSKY? Presented by DR. PAUL E. BECHET.

A. B., a woman aged 54, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, states that she has had an eruption on

the face for five years. The eruption is located in the area typically affected by rosacea; it is erythematous and shows many papulopustules and telangiectatic areas. The lesions are violaceous red and disappear on pressure with the diascope. Tests with tuberculin gave the following results: 1:1,000,000 dilutions, no reaction; 1:100,000 dilutions, 1 plus; 1:10,000 dilutions, 2 plus. Sections of skin were reported to show changes suggestive of Lewandowsky's rosacea-like tuberculid.

DISCUSSION

DR. DAVID L. SATENSTEIN: The eruption seems to resemble that in all the cases of the Lewandowsky type of rosacea that I have seen. I suggest that another section be examined.

DR. HOWARD FOX: This case seems to be a perfect example of ordinary rosacea of the erythematous type. The eruption is strictly confined to the middle two thirds of the face. There is nothing definite to support the diagnosis of rosacea-like tuberculid. The histologic picture does not conform to that of this disease. The patient states that she is subject to indigestion, and on pressure with the diascope there is no evidence of brownish or apple jelly pigmentation.

DR. ANDREW J. GILMOUR: The eruption is a rosacea, although I should not call it a classic picture of that condition.

DR. J. FRANK FRASER: I agree with Dr. Fox that this is a case of rosacea. The distribution of the lesions (middle third of the face) and the fact that the patient is not hypersensitive to tuberculin in dilute solution speak strongly against the diagnosis of Lewandowsky's rosacea-like tuberculid.

DR. MARION B. SULZBERGER (by invitation): I have often found it difficult and in some cases impossible to make a differential diagnosis between atypical rosacea-like tuberculid and atypical acne rosacea. This is such a case, one which presents such difficulties that for me the differentiation is at present impossible. In my opinion this is not typical rosacea. The resistance to all ordinary remedies employed in cases of rosacea (roentgen radiation, "peeling lotions," etc.) and the almost complete absence of pustulation and telangiectasia in my opinion argue somewhat against the diagnosis of ordinary rosacea.

On the other hand, the facts that the patient is not hypersensitive to tuberculin and that the localization of the eruption is that of a typical rosacea indicate ordinary rosacea and argue somewhat against rosacea-like tuberculid.

The results of the histologic examination in this case have seemed to me inconclusive; there were occasional tuberculoid structures, but these were perifollicular and, in my opinion, were too sparse to prove that they were not the tuberculoid structures that may sometimes be found around inflamed and disintegrating follicles in cases of ordinary rosacea.

The roentgen examination of the lungs and all other general examinations gave normal results. Hence there is a situation in which the sum of clinical dermatologic examination plus the immunologic findings, plus the histologic picture and plus the general examination has failed to help me to make a definite diagnosis.

The only further examination I can now suggest is the "contrast test" with tuberculin according to Moro's method on normal skin and on affected areas. Furthermore, therapeutic tests with the tuberculin desensitization or with ordinary therapy for rosacea may throw some further light on this case.

DR. E. WILLIAM ABRAMOWITZ: I should like to see this patient after she has been treated for two months with veterinary white lotion locally and dilute hydrochloric acid internally.

DR. HOWARD FOX: Dr. Sulzberger's arguments in favor of the Lewandowsky disease tend to support the opposite contention that this is ordinary rosacea. The five years' duration, which he considers too long for rosacea, is certainly not a contraindication. Again the fact that the eruption did not improve under roentgen therapy proves nothing. There were only a few such treatments, but even a full course of roentgen treatments frequently produces poor results in this type of

rosacea. Finally he mentioned the absence of pustulation as an argument against rosacea. The answer to this is that the disease is in the erythematous stage.

Dr. Paul E. Bechet: The tentative diagnosis of Lewandowsky's tuberculid was made only because of the histopathologic report. This was also responsible for presenting the patient for diagnosis. From a clinical standpoint alone the lesions form a perfectly typical picture of rosacea. As Dr. Fox has pointed out, resistance to roentgen therapy and chronicity are characteristic of rosacea. I agree entirely with him that this is a clearcut case of rosacea and that the condition is not at all related to Lewandowsky's disease.

Acrodermatitis Chronica Atrophicans. Presented by Dr. David L. Satenstein.

B. G., a man aged 43, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, states that his eruption has been present for fifteen years. It is located on the legs, extending from above the knees downward to the feet, on the left hand and on both elbows posteriorly. The skin over both elbows, extending onto the forearm, is bluish and shiny and shows a mild degree of scaling. Within the involved areas there are firm infiltrations, almost cartilaginous in consistency. The skin over the indurated areas is thinned out and atrophic. The skin of both thighs is of a bluish pink tone and shows a mild degree of scaling. The process over the knees is similar to that described for the elbows, but the induration is a less prominent feature. The skin over both shins is thinned but shiny and shows islands of deep pigmentation alternating with zones of increased pigmentation. Both ankles show a marked induration of the skin. Over the anterior portion of both tibial regions there are scattered superficial excoriations which are probably traumatic. The dorsum of the left hand is bluish and shows some infiltrated nodules at the fifth metacarpophalangeal joint.

DISCUSSION

Dr. Howard Fox: This patient presents many of the clinical features recently mentioned in the excellent article by Schweitzer. It would be interesting to ascertain whether a roentgenogram would show atrophic changes in the bones of the hands.

Dr. Andrew J. Gilmour: This is the first case of this kind that I have seen in a man.

Parapsoriasis Varioliformis. Presented by Dr. David L. Satenstein.

D. A., a boy aged 14½, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, complained of a generalized eruption of five months' duration. The eruption affects the entire body except the face, hands and feet. The lesions are isolated and polymorphous. There are many macular and papular and few vesicular lesions. The papules are lichenoid; some have minute central depressions; others are covered with crusts or scales. Many of them are necrotic in the center. Few lesions are to be found at the hair-line. There are no lesions in the mouth. Scattered throughout are sharply marginated, slightly depressed scars marking the sites of previous varioliform lesions.

DISCUSSION

Dr. Isadore Rosen: This patient shows unusual and extensive parapsoriasis varioliformis in all varieties and developments.

A Case for Diagnosis (Pustular Psoriasis?). Acrodermatitis Perstans. Presented by Dr. Paul E. Bechet.

N. P., a man aged 70, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, states that his eruption began on the hands

and within a few months spread to the forearms and elbows. For fourteen months he presented scaly, sharply outlined lesions on the hands, elbows and occipital region. The finger-nails are absent, and there are much pustulation and pustular crusting on the fingers and finger-tips. There are sharply outlined, scaly, almost cracking plaques about the elbows. The scrotum is erythematous and lichenified. The patient has been under continuous observation for over a year, and there has been no change, despite the most active treatment. The Wassermann, Kahn and Kline tests were negative. Urinalysis and chemical examination of the blood gave negative results.

There is a leukocytosis, the number of leukocytes being 11,300, with neutrophils predominating and 4 per cent eosinophils. Repeated cultures from the skin and stools showed Monilia albicans.

The histologic report was psoriasis.

DISCUSSION

Dr. George C. Andrews: If the bacteriologic findings are reliable I think they settle the diagnosis. Monilia albicans is generally regarded as being pathogenic. The clinical features are quite characteristic of the disease caused by this organism. The smooth and superficially ulcerated condition of the tongue, the fissures and crusts at the corners of the mouth, the loss of the finger-nails, the paronychia and the erythematous scaling, moist lesions on the hands and forearms are typical.

Dr. David L. Satenstein: I have seen only two cases of moniliasis. This patient does not show any of the typical clinical evidences of the disease, and I am at a loss for a diagnosis.

A Case for Diagnosis (Ulerythema Sycosiforme? Sycosis Vulgaris?). Presented by Dr. Isadore Rosen.

J. A., a man aged 40, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents a widespread eruption of the face, scalp and neck. The eruption consists of papules and pustules on a livid base. It extends over the entire hairy area of the face, scalp and back of the neck. There is no scarring, but there is evidence of atrophy. Treatment has consisted of bacteriophage, vaccines and an antiseptic ointment.

DISCUSSION

Dr. Howard Fox: My diagnosis is ordinary sycosis of unusual extent. At times this disease affects the scalp and eyebrows as well as the bearded region. I see no reason for calling the condition ulerythema sycosiforme, as the characteristic scarring of that type of the disease is absent. I know of no cutaneous disease which is supposedly curable which can at times be as obstinate to treat as a condition like this one.

Dr. George C. Andrews: I think the patient has a definitely seborrheic skin which modifies the character of the lesions.

Dr. Mihran B. Parounagian: I agree with the diagnosis of sycosis vulgaris.

Dr. Paul E. Bechet: Dr. Rosen's patient has a generalized pustular folliculitis. Patients with that condition apparently suffer from a primary seborrheic eczema, which because of lowered resistance or some other cause becomes infected and develops into a severe pustular folliculitis on the scalp, face, chest, axillae and genital region. They form a large proportion of the patients hospitalized because of dermatoses, and the disorder is particularly intractable as far as treatment is concerned. It is not a lupoid sycosis or ulerythema sycosiforme, as it lacks the location, the atrophic center and the spreading folliculitis associated with the latter disease.

Lupus Miliaris Disseminatus Faciei. Presented by Dr. Paul E. Bechet.

J. P., a man aged 38, from the Skin and Cancer Unit of the New York Post-Graduate and Medical School and Hospital, was presented by Dr. Fred Wise for

diagnosis before the New York Dermatological Society on Feb. 26, 1935 (ARCH. DERMAT. & SYPH. **32**:986 [Dec.] 1935). No food or medication taken by the patient can account for the lesions. Patch tests for bromides and iodides were negative. The report of the pathologist was Lewandowsky's rosacea-like tuberculid. The pathologic report was at complete variance with the clinical picture, which did not in the least resemble that of Lewandowsky's disease.

Syphilis and dermatitis medicamentosa having been eliminated, the next most plausible diagnosis was disseminate lupus miliaris, despite the history of the rapid onset.

DISCUSSION

DR. HOWARD FOX: If the eruption were not confined to the face and neck and the Wassermann test were positive no one would hesitate to call the condition a papular syphilid. It is surely not rosacea, and the diagnosis, I think, lies between lupus miliaris and acne agminata. The absence of grouping below the eyes and on the lips and nares are opposed to the diagnosis of lupus miliaris.

DR. J. FRANK FRASER: The condition certainly does not present the clinical features of Lewandowsky's rosacea-like tuberculid. Whether the condition is a tuberculid (in the sense of an allergic phenomenon) or a true tuberculosis of the skin can be determined only by microscopic examination. If the histologic picture is that of a true tuberculosis of the skin and especially if the lesions are located in the appendages (hair follicles, sebaceous glands, sweat apparatus) I should be inclined to designate this case as an example of acnitis (acne agminata). The clinical features, I believe, fit in better with those of that condition than with those of lupus miliaris disseminatus faciei. The tendency to grouping about the chin and malar prominences and the color and size strongly suggest acnitis. Maloney, in an excellent article, expressed the opinion that acnitis is a secondary endogenous tuberculous infection. I believe that the final diagnosis in this case rests between lupus miliaris disseminatus faciei and acnitis, and I favor the latter.

DR. DAVID L. SATENSTEIN: In tuberculosis there are clearcut tubercles. In the tuberculid type of rosacea the tubercles are not cleancut but diffuse, with an inflammatory process. Whether necrosis is or is not present depends on the age of the lesion.

LEUKEMIA CUTIS. Presented by DR. MIHRAN B. PAROUNAGIAN.

T. G., an Italian aged 65, was presented before this Society in January 1935 (ARCH. DERMAT. & SYPH. **32**:329 [Aug.] 1935) at which time a tentative diagnosis of leukemia with leukemic infiltrations of the skin was made. Since then most of the cutaneous lesions have regressed, leaving mahogany-colored and wine-colored stains on the trunk. Some of these discolored lesions are moderately elevated. He also has fresh crops of erythematopustular lesions in groups.

The patient feels quite well and strong and has been working. The spleen is palpable about 4 fingerbreadths below the costal margin and is hard. The liver is enlarged about 2 fingerbreadths. There is a moderate diffuse adenopathy. The microscopic examination showed a picture which may fit in with that of lymphatic leukemia. In the upper portion of the cutis there was a moderate cellular infiltrate, in part focal and in part diffuse. There was an interstitial edema, especially in the upper portion of the cutis and in the subepidermal region, where the connective tissue was changing to a lacy network. The epidermis was irregularly acanthotic; the granular layer was composed of one row of cells, and the horny layer was wanting. There was some interstitial edema, and at one point spongiosis with parakeratosis was present. The cellular infiltrate, especially where it was focal, lay within a sort of network, the cells being somewhat slightly larger than small, round cells, the chromatin being less compact and some of the cells having definite bodies.

The results of blood counts were as follows:

	Nov. 2, 1934	Nov. 7, 1934	Dec. 31, 1934	Jan. 7, 1935	March 4, 1935
White cells	37,500	26,050	22,400	19,650	21,350
Red cells	4,000,000	3,500,000	3,470,000	2,830,000	3,750,000
Hemoglobin, per cent	80	75	65	79	67
Polymorphonuclears, per cent	84	97	86	89	92
Lymphocytes, per cent	12	2	6	4	6
Eosinophils, per cent	4	1	6	3	1
Myelocytes, per cent	..	..	2	3	1
Premyelocytes, per cent	..	..	..	1	..

Treatment has been symptomatic.

DISCUSSION

DR. GEORGE C. ANDREWS: With a count of 98 per cent polymorphonuclear leukocytes, I do not see how the diagnosis of lymphatic leukemia can even be considered. Myelogenous leukemia should be ruled out. Another biopsy should be made. The liver and spleen are enlarged, and the patient has no palpable glands. I believe the diagnosis is myelogenous leukemia.

DR. J. FRANK FRASER: I was inclined to agree with Dr. Andrews when this patient was shown at a recent meeting. Myelogenous infiltrations of the skin do occur in cases of myelogenous leukemia, but much less frequently than in the lymphatic type of leukemia. Many of the lesions are undergoing resolution, and the patient enjoys good general health. These facts speak against the diagnosis of myelogenous leukemia.

PSORIASIS PUSTULOSA OF THE PALMS WITH TYPICAL PSORIASIS OF THE ELBOWS. Presented by DR. MAX SCHEER.

E. W., a woman aged 28, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, had nine roentgen treatments and application of salves for an eruption affecting both palms. The lesions cleared up for three months, then appeared and did not respond to further roentgen therapy or application of salves. Both palms, especially the right, are red and scaly. There are many superficial pustules from the size of a pinpoint to that of a match head. There is a typical patch of psoriasis on each elbow.

Examination for tinea gave negative results.

DISCUSSION

DR. DAVID L. SATENSTEIN: I think this patient should not be treated with irritating ointments. The pustules are in all probability due to the therapy.

DR. ISADORE ROSEN: I do not agree with Dr. Satenstein. This condition has nothing to do with the treatment. It is a distinct picture. I do not recommend roentgen treatment.

DR. GEORGE C. ANDREWS: This patient undoubtedly has psoriasis of the elbows. I got the same impression as Dr. Satenstein that the lesions on the hands were modified by the therapy. They are acutely inflamed and strongly suggest some form of dermatitis. There are pustules diffusely scattered all over the palms. Pustular psoriasis starts in patches and does not spread like this eruption has. The left hand has been involved for only three months and is diffusely covered with erythema and pustules. The patient's hair appears to be artificially colored. She may have a dermatitis due to hair dye.

MORPHEA. RESULTS OF TREATMENT WITH ROENTGEN RADIATION. Presented by DR. PAUL E. BECHET.

L. E., a girl aged 16, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, was presented at a meeting of the New York Dermatological Society on Feb. 26, 1935 (ARCH. DERMAT. & SYPH. **32**:981 [Dec.] 1935) with the same diagnosis. Despite the lack of results from roentgen

therapy in this condition reported by a large majority of observers, five doses of ¼ skin unit (75 roentgens) were given once a week and produced marked results. The sclerosed areas have greatly softened and seem to be rapidly undergoing involution. Of course, the patient could not, as yet, be considered cured.

DISCUSSION

DR. DAVID L. SATENSTEIN: I think that the roentgen radiation is hastening the absorption of the sclerotic tissue. I do not know whether that can be called a cure.

PAPULONECROTIC TUBERCULID AND HIDRADENITIS. Presented by DR. MAX SCHEER.

M. C., a woman aged 21, applied to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital for treatment of small pustular lesions in both axillae which had been present for three months. The patient states that the lesions enlarged and disappeared without leaving scars. She had used no deodorants, nor had she shaved. She had believed the lesions which were present on the hands and legs to be mosquito bites.

She has been in good health except for the fact that she had an appendectomy six years ago; it was followed by adhesions, and at present she has frequent attacks of "colic." There is no history suggestive of tuberculosis, and the family history is irrelevant.

In each axilla there are several confluent dark red nodules which are infiltrated and have a tendency to coalesce. On the legs, elbows and dorsa of the hands there are several discrete infiltrated pigmented plaques the size of a pea which have crusted necrotic centers.

Patch and intradermal tests with tuberculin produced about a normal degree of response.

REPORT ON A PREVIOUS CASE. By DR. J. FRANK FRASER.

Miss R. G., aged 29, was presented before this Society in January (ARCH. DERMAT. & SYPH. **32**:324 [Aug.] 1935) for diagnosis. The tentative diagnosis was psoriasis or mycosis fungoides. Last month (ARCH. DERMAT. & SYPH. **32**:332 [Aug.] 1935) I reported on the findings at the St. John's Hospital, and I have the following additional data to report: The metallic elements in the biopsy specimen were present in normal quantities except for tin and chromium. The density of the line for tin indicated a trace. The density of the line for chromium indicated a retention of chromium corresponding to the retention of nickel as found in cases of psoriasis. A second biopsy on material from the leg removed by means of a 0.47 cm. punch on March 6, 1935, showed that the metallic elements were present in normal quantities except for chromium. The density of the line for chromium indicated a retention corresponding to the retention of nickel found in cases of psoriasis.

MIHRAN B. PAROUNAGIAN, M.D., *Secretary*

April 9, 1935

ISADORE ROSEN, M.D., *President*

ANGIOMA. Presented by DR. GEORGE C. ANDREWS.

M. A., a girl aged 18 months, is presented from the Vanderbilt Clinic, because of a slightly elevated wine-colored mass measuring 12 by 6 by 1 mm. which involves the outer two fifths of the left lower eyelid. The lesion has been present since birth. The eyelashes are displaced 1.5 mm. downward, and the vascular mass extends beyond them to the tarsal conjunctiva. With the area under ethyl chloride

anesthesia a solution of quinine hydrochloride and ethyl carbonate (urethane) was injected on two occasions. Marked improvement in the appearance was noted.

ROENTGEN RAY DERMATITIS. Presented by DR. GEORGE C. ANDREWS.

L. S., a boy aged 7, received eight roentgen treatments two years ago, each about two weeks apart, for a ringworm infection of the toes. The toes of both feet present painful ulcerations. Some improvement occurred at first from treatment with aloe, but recently the condition has become worse again.

DISCUSSION

DR. HOWARD FOX: From the present appearance of the lesions I do not think that the diagnosis of roentgen dermatitis is correct. According to the mother's statement, roentgen radiation was administered to the lower half of the dorsum of the foot, and that area shows no telangiectases at the end of two years. If the amount of radiation applied had been sufficient to cause third degree ulcers there should be evidence of telangiectasia in the surrounding tissues. Dr. Ormsby, with whom I talked recently, was enthusiastic about the treatment of painful ulcers due to roentgen rays with aloe. He said that the pain disappeared rapidly and that the ulcers healed in a surprising manner.

DR. GEORGE C. ANDREWS: The active principles of the plant have not been precisely identified. Work done so far has shown that it has a high iodine content. Tannic acid may also be a factor.

DR. LUDWIG OULMANN: There is an ointment in the market, which has been manufactured by Obermeyer (Hanau, Germany) for many years, which contains some extract of a cactus and the use of which is recommended by Schreus and Hauck in cases of roentgen ray dermatitis.

DR. MAX SCHEER: This patient shows no evidence now of a roentgen ray dermatitis. There is ulceration but no telangiectasia, pigmentation or atrophy.

DR. FRED WISE: I saw the patient some time ago, and there was a typical roentgen ray dermatitis of the ulcerative type. He had a large number of areas of telangiectasia on the dorsa of the feet. I think they disappeared partly after an ointment containing a thorium compound had been used.

DR. PAUL GROSS (by invitation): When I saw this patient in consultation the condition showed all the characteristics of roentgen ray dermatitis. Besides the ulcerations there was a marked tumor-like fibrosis which I thought was rather alarming. I suggested that mild ointments be used to relieve the pain and that treatment with an ointment containing a thorium compound such as that advocated by Dr. Wise be administered. Tonight I am impressed by the great improvement.

DR. GEORGE C. ANDREWS: This patient has improved under treatment with aloe; he has been seen by many dermatologists, and no one has ever questioned the diagnosis of roentgen dermatitis. When he first came to me he was suffering from excruciating pain. He has been treated with aloe for about two months.

A CASE FOR DIAGNOSIS (PEMPHIGUS VULGARIS?). Presented by DR. GEORGE C. ANDREWS.

M. W., a girl now aged 5 years, was admitted to the Grasslands Hospital in February 1933, at 2½ years of age, with a bullous eruption of five months' duration on the face, arms and legs. At first lesions appeared on the face and were treated as impetigo. After the child entered the hospital the eruption soon became generalized, involving the entire body. The lesions consisted of bullae, crusts and raw denuded areas left by broken bullae. Physical examination failed to show any probable cause for the eruption.

The patient remained in the hospital for a year and a half. During that time there were periodic exacerbations of the cutaneous condition, which failed to respond to all forms of treatment, including local application of gentian violet,

potassium permanganate, ammoniated mercury, ultraviolet irradiation, roentgen irradiation and administration of a diet with a high vitamin content. Tonsillectomy was performed in October 1933. No improvement followed. The patient was also treated by autohemotherapy and received a course of injections of an autogenous vaccine prepared from a culture of Streptococcus viridans isolated from the bullae. The results of the blood count were as follows:

	Red Cells	Leukocytes
Feb. 10, 1933	4,260,000	11,400
Aug. 28, 1933	3,810,000	18,550
July 26, 1934	4,350,000	12,500

There was no abnormality in the differential count.

Improvement occurred while the child was receiving 10 cc. of viosterol daily for a period of five or six months. The eruption finally cleared up entirely after she received a solution of potassium arsenite by mouth for a period of two months.

A specimen of blood sent to Dr. Pels for a phytopharmacologic test showed extremely high toxicity.

DISCUSSION

DR. HOWARD FOX: I think it is difficult to make a diagnosis of pemphigus in children, as the disease differs so greatly from that in adults. So-called pemphigus in children always seems to be benign. The presence of severe itching in this case points against a diagnosis of pemphigus. On the other hand, the positive Pels-Macht test is indicative of that disease.

MELANOCARCINOMA. Presented by DR. FRED WISE.

J. S., a man aged 28, born in the United States, a salesman, who is under the care of Dr. C. R. Rein, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, because of a tumor mass of the hard palate. The patient first noticed the mass on the left side of the hard palate about nine months ago. He thought it was caused by a scratch from a fish bone. The mass increased slightly in size. Two months after the onset it was incised by a local physician. A small amount of blood and serum escaped from the wound. For the past few months the mass has become slightly larger. A biopsy was made on material removed from the lesion by means of a punch, and the base of the lesion was desiccated. The microscopic examination showed a picture suggestive of nevocarcinoma.

At present the patient presents a firm, indurated bluish-red tumor measuring 1½ by 2½ inches (3.8 by 6.3 cm.) on the left side of the hard palate. In the center of the lesion there is a necrotic ulcer resulting from the biopsy. The neoplasm is moderately painful on palpation. There is no enlargement of the cervical glands.

DISCUSSION

DR. MAX SCHEER: I wish to ask the presenter what therapeutic measures he intends to use.

DR. FRED WISE: It was decided in a consultation of surgeons that a radical operation is indicated.

MYCOSIS FUNGOIDES D'EMBLÉE. Presented by DR. GEORGE C. ANDREWS.

H. L., a man aged 74, was treated in April 1927 for an ulcerated tumor of five months' duration. The lesion was 3 inches (7.62 cm.) in diameter and was situated on the left lower abdominal quadrant just above the pubis. The patient had never had any cutaneous trouble before. The lesion presented an unusual appearance, being a semicircular linear ulceration, ½ inch (1.27 cm.) wide and 5 inches (12.7 cm.) long. The edges were palpable and firm but not stony hard. They were elevated ½ inch (1.27 cm.) above the level of the skin. On the outer surface of the right thigh there was also a purplish macule. At that time a biopsy specimen examined by Dr. Satenstein showed a structure typical of mycosis fungoides. The

lesion healed entirely after intensive doses of unfiltered roentgen radiation. There was no recurrence of the cutaneous trouble in any form until six months ago, when pruritic erythematous infiltrated patches appeared on the thighs and legs. Close inspection of these shows that the coloration is of various hues in any one patch and that the infiltration likewise is variable in single patches.

There is no sign of recurrence of the ulcerated tumor on the abdominal wall, the site showing atrophy due to the roentgen treatment.

DISCUSSION

DR. FRED WISE: I agree with the diagnosis.

DR. HOWARD FOX: From the appearance of the photograph which was presented the initial lesion appeared to be more like an infiltrated plaque than like a tumor. The present eruption suggests mycosis fungoides on account of the varying degree of infiltration in the patches and the presence of itching.

DR. MAX SCHEER: This type of mycosis fungoides occasionally occurs and is called "typus inversus." The tumors are the first manifestation of the disease (mycosis fungoides d'emblée). Years later the erythematous psoriasiform patches appear.

DR. PAUL GROSS (by invitation): This case fits in with the third type of mycosis fungoides d'emblée, in which the tumor precedes the prefungoid manifestations. I think this is the rarest type of mycosis fungoides d'emblée.

DR. J. FRANK FRASER: Dr. Sequeira reported a case in which the condition was present for thirty-five years. It would be interesting to know how much roentgentherapy that patient received.

DR. GEORGE C. ANDREWS: In the nine years which have elapsed since the diagnosis of mycosis fungoides d'emblée was made in this case, much progress has been made in the study of that disease. There is no doubt that the original lesion was a tumor. At present one would diagnose it as a reticulo-endothelioma. The suggestion that this patient presents an inverse type of mycosis fungoides is interesting, but I disagree with that suggestion. It is my opinion that the whole course of the disease was changed by the intensive roentgen treatment given the original tumor. I think that this treatment almost led to permanent retrogression of the disease but that during the past six months the disorder has recurred in a mild form. The original process was neoplastic. The recurrence is simply granulomatous.

LUPUS ERYTHEMATOSUS. Presented by DR. LUDWIG OULMANN.

R. L., a woman aged 29, of German descent, was presented before the Section of Dermatology and Syphilis of the New York Academy of Medicine in February 1935 by Dr. Spiegel with the diagnosis of erythema elevatum diutinum. As there had always been scaliness and follicular plugs I could not agree with the diagnosis but regarded the case as one of lupus erythematosus. The patient has received two more injections of a gold preparation, and considerable improvement has resulted. There was a superficial patch with adherent scales on the left cheek. A new lesion has developed on the right ear since the first presentation. Tests with tuberculin were positive.

PACHYONYCHIA CONGENITA. Presented by DR. GEORGE C. ANDREWS.

I. L., a boy aged 11 years, has the following history: Two weeks after birth the nails on the hands grew out like talons. When the child was 6 months old the nails of the hands and feet began to fall off at intervals of about two months. The formation of an area of redness and bogginess surrounding the nail bed preceded the shedding of the nail. When the patient was 18 months old warty lesions developed on the knees; later similar lesions appeared on the elbows, popliteal areas, buttocks, legs and ankles. At irregular intervals a series of bullae developed.

These occurred on the toes and heels and along the borders of the feet. The bullae were painful, and when they were opened there remained a raw denuded surface which was slow in healing.

The striking feature of the specimen was a thickening of the epidermis due to acanthosis and parakeratosis, especially pronounced about the pilosebaceous follicles. The rete pegs were lengthened, and about the follicles the epidermal thickening caused funnel-shaped prolongations extending into the corium. The openings of the follicles were dilated and plugged with imperfectly cornified and somewhat degenerated horny material, and horny plugs were also present in the sweat pores. The basal cell layer was irregular, and the cells were swollen. There was granular degeneration in the prickle cells; the nuclei stained deeply, and some were crescentic, being pushed to one side of the cell by hydrops. They resembled the *corps ronds* found in cases of Darier's disease. The papillary bodies between the rete pegs were elongated, and in some places the apexes came near the surface of the skin. The blood vessels of the corium were dilated and surrounded by lymphocytes, mast cells, connective tissue cells and an occasional plasma cell; the appearance suggested a mild inflammation from the pressure or irritation of the overlying thickened epidermis. The connective tissue seemed normal.

The nails of all the toes and fingers have been surgically removed by another physician. Some nails have regrown in distorted fashion. The bullae and denuded areas have responded slowly to application of soothing and antiseptic ointments. However, new bullae continue to develop at intervals. Ultraviolet therapy seems beneficial. Application of keratolytic pastes has relieved the nutmeg grater-like feel on the legs and elbows.

DISCUSSION

DR. HOWARD FOX: I agree with the diagnosis of this rare condition. The appearance of the nails was formerly precisely similar to that in the case originally described by Jadassohn and Lewandowsky. At present the nails have changed in appearance as a result of their removal several months ago. The numerous warty lesions and the vesicles are all part of the syndrome described by Jadassohn. Leukoplakia has not been present in this case. In the case which I reported the condition closely resembled the one in this patient.

ACTINOMYCOSIS. Presented by DR. GEORGE C. ANDREWS.

M. H., a Negress aged 35, entered the Vanderbilt Clinic on Oct. 17, 1934, complaining of pain and swelling in the lower portion of the face on the left side and of inability to open her mouth.

The left lower third molar had served as a bridge abutment for years. Because the patient suffered from pain beneath this molar a dentist gave the injections to cure what he diagnosed as "pus" in the tooth. Pain followed and was present for two months; then the face became swollen. The tooth was extracted on Sept. 26, 1934. The swelling did not subside, and the jaw felt stiff. The patient could open the mouth about 2 cm. The swelling involved the angle of the jaw anterior to the ear. No submaxillary involvement was noted. Anterior to the swelling there was edema. On Nov. 8, 1934, an incision in three areas over the mass released thick, foul-smelling pus and necrotic cellular tissue. All incisions communicated. A smear of pus was found to contain sulfur granules caused by actinomycosis.

Treatment has consisted of administration of a high vitamin diet, local applications of potassium iodide and roentgen treatment, a dose of 160 kilovolts, filtered with 1 mm. of aluminum and 0.25 mm. of copper, 150 roentgens being administered at each treatment. The patient received a total of seven treatments; the last one was given on March 11, 1935.

ACTINOMYCOSIS. Presented by DR. GEORGE C. ANDREWS.

I. R., a boy aged 13, entered the Vanderbilt Clinic complaining of a gradually increasing red swelling on the left side of the jaw, which began in July 1934. The

mass was incised on two occasions in the dental clinic. The patient was unable to open his mouth for the following six weeks and took only fluid nourishment. A diagnosis of subperiosteal abscess was made, and drainage by incision was instituted on Aug. 6, 1934. The necrotic tissue was curetted, and drains were inserted. The diagnosis based on examination of pathologic tissue was acute inflammation. A smear of the pus revealed sulfur granules caused by actinomycosis. Treatment has consisted of administration of 15 grains (0.972 Gm.) of potassium iodide three times a day and of roentgen radiation, filtered, 150 roentgens weekly; ten such doses were given, the last being administered on Jan. 8, 1935.

DISCUSSION

DR. HOWARD FOX: Dr. Andrews is to be congratulated on having shown two patients with a disease which is rare in New York. The result of treatment is also excellent.

DR. J. FRANK FRASER: I agree that Dr. Andrews has established the diagnosis of actinomycosis. The question of the mode of entrance of the organism into the tissues has been in dispute; one theory is that it gains entrance through the agency of straws and splinters; another view is that the organism exists in normal tissue (mucous membranes, gastro-intestinal tract), and that it becomes pathogenic only when the tissues suffer an injury. I presented a patient with actinomycosis of the skin before the New York Dermatological Society in December 1923.

LICHEN PLANUS BULLOSUS. Presented by DR. GEORGE C. ANDREWS.

This woman, aged 29, was admitted to the Presbyterian Hospital on March 20, 1935. The trunk and extremities presented an erythematosquamous eruption of bluish color of two months' duration. On the wrists and forearms the lesions were typical of lichen planus. On the breasts there were dime-sized excoriations on the site of previous bullae. On the left thigh and left leg there were discrete, bean-sized bullous lesions in patches definitely showing the configuration of lichen planus. On the buccal mucosa of the right side there was a superficial whitish plaque.

The patient had received injections before coming to the clinic, but the bullae were present before she received the injections. She was seen at the New York Polyclinic Medical School and Hospital a few weeks earlier, at which time a typical picture of lichen planus was noted.

Examination of the blood showed 80 per cent hemoglobin, 4,140,000 red cells and 10,000 white cells, with 66 per cent polymorphonuclears. The urine and stools were normal. The Wassermann reaction was negative. The sugar, nonprotein nitrogen and chloride content of the blood was normal. The phenolsulphonphthalein test showed 80 per cent excretion; the basal metabolic rate was + 17 per cent. Fluid from bullae showed two colonies of Staphylococcus aureus (hemolytic) and two colonies of Staphylococcus albus.

Treatment has consisted of hospitalization and of soothing local applications. Administration of fractional doses of roentgen radiation (75 roentgens weekly) has been followed by marked improvement.

DISCUSSION

DR. HOWARD FOX: I agree with the diagnosis in this case. The patient presents a well authenticated though rare type of lichen planus. To prove that the bullous lesions are a manifestation of the disease it is necessary to show that they arise on the patches of lichen planus and that they are not an eruption due to a drug.

DR. GEORGE C. ANDREWS: This is the second patient with bullous lesions of lichen planus whom I have treated with roentgen radiation, and both have responded splendidly.

LUPUS ERYTHEMATOSUS. Presented by DR. GEORGE C. ANDREWS.

G. N. a man aged 29, says that he has suffered from itching behind the ears and on the neck for three months. Small nodules have formed and are slowly growing larger. The patient has received four fractional doses of unfiltered radiation (75 roentgens weekly) with no benefit.

Behind each ear there is a lesion made up of nodules from the size of a pea to that of a dime in linear arrangement with serpiginous outline. The lesions extend to the angle of the mandibles, where satellite plaquelike nodules are present. The lesions have apparently healed in the center, spreading peripherally, leaving a brownish pigmentation. The nodules and plaques are firm and flesh-colored.

The Wassermann test was negative. Two biopsies have been made, and they showed only signs of a chronic inflammatory reaction, with no changes characteristic of sarcoid or syphilis. The patient has received four injections of gold sodium thiosulphate weekly, but no change in the clinical picture has taken place. Three grains (0.195 Gm.) of bismuth subsalicylate has been given weekly for seven weeks, and considerable regression of the lesion has taken place.

DISCUSSION

DR. MAX SCHEER: Clinically this patient has lupus erythematosus.

DR. FRED WISE: One lesion on the cheek shows the clinical picture of lupus erythematosus. The elevated edematous lesions on the neck correspond in clinical appearance to the nodular type of lupus erythematosus, first described by Crocker.

DR. ISADORE ROSEN: The lesion is irregular, and the center is entirely clear; the activity is on the edge. On account of the histologic picture I certainly should like to see the sections. The condition may be syphilis.

DR. GEORGE C. ANDREWS: The section showed no panarteritis, plasma cell infiltration or other signs of syphilis. The Wassermann test was negative. The lesion has improved under treatment with a gold preparation.

MELANOSARCOMA. Presented by DR. GEORGE C. ANDREWS.

E. C., a man aged 33, was admitted to the Vanderbilt Clinic on Sept. 6, 1929, with a lesion on the lateral surface of the left foot of seven months' duration. The foot was traumatized by a horse in 1922. The lesion has been growing larger for seven months. Occasionally paresthesia is noted over the lesion.

On the lateral surface of the left foot there is a freely movable rather soft purplish tumor the size of a pigeon's egg. Palpation elicits a cartilaginous feel. The lesion is attached to the skin. No tenderness is noted. No attachment to the extensor tendons can be made out.

A section removed for histologic examination showed a growth composed of many collagen fibers which were wrapped about the cells, and both the cells and the fibers were arranged in interlacing bands. The growth was in the corium; it extended up to the papillary layer, surrounding the epithelial structures of the skin and reaching the subcutaneous tissue. The cells showed a negative reaction to silver. Associated with the growth were many large and small capillaries. The most striking feature of the growth was the presence in it of many stellate cells. Many of these contained brown pigment, which became black when stained with silver and was undoubtedly melanin. An almost equal number of cells were found to react positively in the fresh state when soaked in dopa, showing that they were true melanoblasts. These cells were much larger than the melanoblasts in the epidermis, and were all situated at a considerable distance from the epidermis, which did not touch the tumor at any point. No mitoses were found among the cells containing melanin and among the spindle-shaped fibroblast-like tumor cells. They were extremely rare.

This growth, from its morphology and its history, must be considered a melanosarcoma resulting from a blue nevus or mongolian spot. Such tumors are exceedingly rare, and one must accept the findings of Darier, who had observed a few cases and says that they are slow-growing and relatively nonmalignant tumors.

The tumor was excised in May 1932, and a Thiersch graft from the medial femoral region was transplanted. No sign of recurrence has been noted.

DISCUSSION

Dr. J. Frank Fraser: From the casual examination I made of the section I believe that the tumor is not a melanoma. I favor the diagnosis of neurofibroma. Pigmented neurofibromas have been observed in cases in which melanin was the pigment.

Dr. Fred Wise: I wish to ask Dr. Andrews whether he saw the original blue nevus or whether the patient's previous history indicated the existence of a blue nevus.

Dr. George C. Andrews: The statement that the lesion arose from a blue nevus was based on the pathologic observations. The long dendritic cells which stained heavily with the dopa reaction could not be interpreted as anything except melanoblasts if one accepts Bloch's work, as nearly every one does. Such cells do not occur in neurogenic sarcomas or in idiopathic hemorrhagic sarcomas. According to Darier, the mesodermal melanoblastic apparatus in human skin is the manifestation of an atavistic tendency. The true melanosarcomas of the skin described by Darier were relatively benign growths.

A Case for Diagnosis (Keloid?). Presented by Dr. George C. Andrews.

A woman, aged 23, states that about five months ago a small papule developed on the nose. There is no history of an antecedent lesion or of injury, picking or squeezing.

On the center of the bridge of the nose there is a yellowish-red papule 4 mm. in diameter. Pressure with the diascope causes the lesion to disappear entirely. The patient has received 500 roentgens of radiation filtered through 3 mm. of aluminum.

DISCUSSION

Dr. Fred Wise: Judging by the color and consistency of the lesion, I hazard the diagnosis of sarcoid of Boeck.

Dr. George C. Andrews: Because of the site of the lesion it is particularly hard to remove a specimen for biopsy without leaving a disfiguring scar. That is why no biopsy was made. The diagnoses of sarcoid and of keloid have both been considered.

Roentgen Dermatitis. Presented by Dr. George C. Andrews.

R. C., a woman aged 32, received sixty roentgen treatments for hypertrichosis of the bearded region fifteen years ago. She has been treated with aloe as recommended by Dr. Creston Collins. After that medication had been used for four weeks a vesicular dermatitis developed on the cheeks. This subsided under soothing applications, and then the use of aloe was resumed. A second attack of dermatitis followed. The patient is now using an ointment containing aloe. She believes that there is a slight improvement in the condition.

Lichen Planus Follicularis. Presented by Dr. Mihran B. Parounagian.

J. L., a man aged 60, born in Roumania, is a carpenter. He first noticed itching and an eruption on the lower portion of the back about two months ago. From that region the eruption extended to the thighs and abdomen. The patient states that he had no cutaneous disorder before the appearance of the eruption and that he is free from venereal disease. The major portion of the eruption is located over the lower portion of the back and over the buttocks, but there are lesions also on the upper and outer portions of the thighs, on the abdomen and on the arms and forearms. There are no lesions in the mouth or on the glans penis.

The lesions are of two distinct types. Predominant is a follicular hyperkeratosis, giving the skin a nutmeg-like appearance. Here and there are scattered flat smooth, shining papules the size of a millet seed, some having a violaceous hue, and some being umbilicated centrally. There are a great number of small senile angiomas on the patient's body. The Wassermann examination on April 1, 1935, gave negative results.

DISCUSSION

DR. ANDREW J. GILMOUR: In my opinion the condition is keratosis pilaris.

DR. PAUL GROSS (by invitation): The circumscribed atrophic patches on the scalp together with the lesions on the body suggest the diagnosis of folliculitis decalvans et atrophicans such as that described by Graham Little and McCafferty.

DR. FRED WISE: I examined the scalp and found patches of alopecia and atrophy. The patient presents the well known combination of alopecia cicatrisata of the scalp and keratosis pilaris of the trunk and extremities, as described several years ago by McCafferty.

DR. HOWARD FOX: I did not notice the lesions on the scalp, but I observed those on the trunk closely. These were typical of ordinary keratosis pilaris and did not resemble lichen planus.

MULTIPLE STEATOMA. Presented by DR. GEORGE C. ANDREWS.

A. L., a woman aged 44, states that tumors have appeared on the head, forearms and axillae for twenty-three years. They have grown slowly and have been nontender and painless. Two sons, the mother and the grandfather of the patient have a similar condition. Some of the tumors have been squeezed by the patient, and a yellowish-white cheesy material has been expressed.

Large subcutaneous cystic tumors the color of the skin are present on the forehead and scalp. On the back and around the vulva there are multiple firm tumors showing either a definite yellowish color throughout or a beginning of yellowish pigmentation on the surface. There are also some bluish papules the size of a split pea. The back presents widespread acne with comedones. The Wassermann test of the blood was negative. The cholesterol content of the blood was 172 mg. per hundred cubic centimeters. The histologic study confirmed the clinical diagnosis.

NEW YORK DERMATOLOGICAL SOCIETY

EDWARD R. MALONEY, M.D., *Acting Chairman*

March 26, 1935

R. H. RULISON, M.D., *Secretary*

NAEVUS PIGMENTOSUS. Presented by DR. J. FRANK FRASER.

S. G., a girl aged 4 years, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. There is a circular area of melanosis, from 2 to 3 mm. in diameter, on the sclera of the right eye. On the left lower eyelid there is a slightly raised roughly triangular brownish area extending from the inner canthus to 1.5 cm. beyond the outer canthus and downward to the malar region. In that region there are several small considerably elevated areas in which the pigment is condensed and which present a dark slate color. The lesion has been present since birth.

The patient is presented in order that an expression of opinion from the members may be obtained as to whether it is advisable to leave the lesion untreated or to resort to a plastic operation.

DISCUSSION

DR. HOWARD FOX: I think that application of carbon dioxide snow is the best method of treatment.

DR. CHARLES MALLORY WILLIAMS: I should wait a few years before instituting treatment.

DR. A. BENSON CANNON: I should wait until the child is older and then remove the nevus by excision in successive stages. I believe that that method would give a particularly good result because of the location. Or the nevus could be removed by electrodesiccation or electrocoagulation and the plastic operation resorted to later.

DR. HOWARD FOX: I wish to recall a case in which an extensive lesion of this type, occurring in the same region, was treated by my father many years ago with electrolysis. The method was slow and painstaking, but the result was excellent.

DR. GEORGE M. MACKEE: Ordinarily I prefer treatment with carbon dioxide snow in a case of this kind. The cosmetic result is probably better than that which is obtained by any other method, particularly when the lesion is too large for simple excision. I prefer the treatment with carbon dioxide snow to electrodesiccation because with the latter method the scar is less esthetic and is likely to be hyperplastic or keloidal. In this case, however, there is a complication. I should advise against any method that does not remove the nevus entirely because there are several small somewhat bluish-black papules which may have dangerous potentialities. In this case I should prefer a plastic operation. An alternative method would consist of excision of the papules followed by application of carbon dioxide snow over the large lesion.

DR. HENRY D. NILES (by invitation): The point which Dr. MacKee brought up is the reason that the patient is presented. She has these darker spots, and it was questioned whether the members would think it safe to leave the lesion untreated and keep the patient under observation. My colleagues and I thought it might not be safe to refrain from treating the lesion.

DR. GEORGE M. MACKEE: This patient is young and has an expectancy of long life. Therapeutically, one should consider the cosmetic effect and the possible danger. The question is, is it safe to do nothing and keep the patient under observation? The answer is yes, provided the patient will really remain under observation. A few years ago some one presented before this society a patient with a small, apparently benign melanoma on the nose. The members agreed that the lesion ought to be left alone and the patient kept under observation. The patient did not remain under observation, and when she finally came back there was a rapidly growing malignant neoplasm.

DR. J. FRANK FRASER: The question was brought up whether it is safe to leave this patient's lesion untreated for several years. My personal opinion is that it will be perfectly safe because the brown pigmented nevi with growth of hair are not the type which undergo malignant degeneration.

DR. EUGENE F. TRAUB: There is one point to be emphasized about excision in different stages. If a central portion of the lesion is excised and the skin brought together the nevus as well as the skin will stretch. Thus if a portion of the nevus measuring about 1 inch (2.5 cm.) in diameter is taken out and time is allowed for healing and stretching of the skin only about one fourth of the width actually excised will have been gained. I have had that experience on several occasions when the operation was not performed in one stage.

DR. PAUL E. BECHET: One case observed today illustrates the danger of excising a lesion like this in stages. The patient, a woman, had a large pigmented nevus, about 8 inches (20 cm.) in diameter, on the back. Some one excised it in stages six or eight months ago. Now she has a large melanosarcoma over the entire area, whereas, according to the history she gives, she had absolutely nothing but a pigmented nevus before the lesion was excised.

A Case for Diagnosis: Psoriasis? Mycosis Fungoides? Presented by Dr. J. Frank Fraser.

R. G., a woman aged 29, was presented before the Manhattan Dermatological Society in January 1935 (Arch. Dermat. & Syph. **32**:324 [Aug.] 1935).

DISCUSSION

Dr. George M. MacKee: This is certainly a diagnostic problem. One can speak for and against the diagnosis of psoriasis and for and against that of mycosis fungoides. The dry silvery scales on many of the lesions and the definitely outlined configurate patches are indicative of psoriasis. There is a possibility that the patient originally had psoriasis, that the condition then changed into a secondary type of dermatitis exfoliativa and that now it is psoriasis again. On the other hand, there are some patches which are definitely infiltrated and not scaly. There is considerable itching. These features as well as the enlarged glands are indicative of mycosis fungoides. Under the microscope the section of skin shows the picture of psoriasis. I am uncertain about the section of glandular tissue, but it suggests inflammation. A number of similar cases are on record. The condition will probably eventually prove to be mycosis fungoides.

Dr. Frank C. Combes: I think this is a case of mycosis fungoides. Dr. MacKee has covered most of the points in favor of mycosis fungoides. I think that the scales, while they are silvery, are not the micaceous scales which one expects to see in cases of psoriasis. They are moist and larger than those seen in cases of psoriasis. I think this is one of those cases, of which one sees many, in which for years the condition falls under the clinical and histologic diagnosis of psoriasis and then changes to a frank mycosis fungoides. I think the condition is probably undergoing a change from psoriasis to mycosis fungoides.

Dr. Henry D. Niles (by invitation): I am inclined to agree with Dr. Combes that the condition is mycosis fungoides on account of the several infiltrated patches. I cannot reconcile those with psoriasis.

Dr. A. Benson Cannon: I also think that the condition is mycosis fungoides. It seems improbable that such a degree of infiltration and even nodules such as this patient has would be present in a case of psoriasis. Even the bluish color of the nodules is suggestive of mycosis fungoides, and so is the itching.

Dr. Howard Fox: There is a clinical suggestion of mycosis fungoides although this is not corroborated by the results of the histologic examination. It seems to me that the present tendency is to make a diagnosis or possible diagnosis of mycosis fungoides too frequently. At any rate, the terminal stage of tumor formation is still rare in such cases.

Dr. J. Gardner Hopkins: I believe one can be sure that the lesion from which the biopsy specimens was taken was not one of mycosis fungoides. I did not know that psoriasis or psoriasis-like eruptions had been known to change into mycosis fungoides. The cases that are usually seen are cases of parapsoriasis with some vague inflammatory reaction, not with clearcut lesions like the ones exhibited by this patient. In this case the biopsy ought to indicate clearly the diagnosis. Possibly more biopsies should be made.

Dr. Charles Mallory Williams: In regard to Dr. Hopkins' remark, I think about two years ago there was presented before this society a man with a positive diagnosis of psoriasis in whom the disorder did change to mycosis fungoides. At least one such case has been reported. Everything has been said in favor of psoriasis in this case, but I cannot see that psoriasis accounts for the few dark brownish nodules which the patient exhibits. They are not typical of psoriasis at all. I think they are nodules of mycosis fungoides. I think that if another biopsy is made the specimen should be taken from one of these nodules and not from other parts of the skin. I think that these two nodules in conjunction with the rest of the picture are positive evidence that the condition is mycosis fungoides.

DR. R. H. RULISON: It seems to me that the diagnosis of mycosis fungoides covers all the lesions present and that the diagnosis of psoriasis does not. I am in favor of the diagnosis of mycosis fungoides.

DR. PAUL E. BECHET: There has been a radical change in the appearance of these lesions since Dr. Fraser presented this patient at the meeting of the Manhattan Dermatological Society. At that time she had no nodules. The lesions were perfectly flat and only slightly infiltrated, but there was not much more infiltration than in cases of ordinary psoriasis. The eruption looked exactly like psoriasis. Tonight the lesions have a radically changed appearance. There are definite nodules, almost small tumors; one, in the axilla, is about the size of a quarter. I think this is a case such as that which Dr. Fox reported, in which mycosis fungoides finally developed in a man who had had psoriasis for twenty years. My opinion today is that the condition is mycosis fungoides and that it was mycosis when I called it psoriasis.

DR. EUGENE F. TRAUB: Most of the points have already been covered, but one which was not sufficiently stressed is that the lesions which are showing definite tumor formation are also gradually losing all their scales. The case referred to by Dr. Williams is that of a man who had been treated off and on for over ten years by a large number of dermatologists. During that time his condition was diagnosed clinically and histologically as psoriasis. When the tumors appeared the lesions became less scaly, and in a short time none of the lesions which had formerly been psoriatic gave even a remote suggestion of that disease. The tumors disappeared after treatment with roentgen radiation. But in the prominent stage of the disease there suddenly developed a peppering of nodules and tumors, some of which were located in the skin but many of which occurred in the deeper tissues. The clinical appearance of these tumors as well as the microscopic picture was that of a lymphosarcoma. Apparently even the tumor stage of the disease can vary, and there may be entirely different clinical as well as microscopic appearances at different times in the same patient, and this transition is undoubtedly a part of the disease. I believe that Dr. Fraser's patient has mycosis fungoides which was preceded by a psoriasis-like eruption.

DR. J. FRANK FRASER: Dr. MacKee has pointed out that there is evidence in favor of both diseases. The fact that for a year the patient suffered from pruritus without apparent cutaneous lesions supports the view that the condition is mycosis fungoides. In one of the cases which I reported in 1917 (*J. Cutan. Dis.* **35**:793 [Dec.] 1917) there was a similar history of severe itching for a long period before the appearance of cutaneous lesions. On the other hand, the histologic picture in two sections of skin taken from infiltrated areas (one section was taken in January and the other in March) supports the view that the disease is psoriasis. The microscopic picture in both of these sections fits in with the clinical diagnosis of that disease, and there is no histologic evidence of mycosis fungoides. Regarding the presence of nodules in the skin and of enlarged lymph nodes as favoring the diagnosis of mycosis fungoides, the patient's record at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital shows that she had an exfoliating dermatitis in 1934. It is well known that exfoliating dermatitis is frequently accompanied by adenopathy, and the nodules which are present now may well be a relic of that condition. The section of the inguinal lymph node shown here, while exhibiting in places some of the features of Hodgkin's disease, may well be interpreted as a lymphadenitis caused by the exfoliating dermatitis. In a case of exfoliating dermatitis following the application of mercurial ointment for the treatment of pediculosis pubis, which came under my observation recently, a similar microscopic picture was observed in the section of an inguinal lymph node. This patient made a perfect recovery, the adenopathy having completely subsided with the cure of the dermatitis. Another point against the diagnosis of mycosis fungoides is the fact that the patient's general health has continued to improve during the last year. She has gained in weight, and the adenopathy has subsided to the extent that at present, with the exception of one or two small

nodules in the skin, scarcely any palpable nodes remain. After all that has been said I shall not commit myself to a final decision without further following the progress in this case, which I hope to report at a future meeting of the society.

ROSACEA-LIKE TUBERCULOSIS OF THE FACE. Presented by DR. EUGENE F. TRAUB.

V. F., a man aged 43, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents an eruption of about five years' duration involving only the face and to a slight extent the bearded areas of the neck. The eruption improves in the summer but has never completely disappeared since the onset. The primary lesion consists of an inflammatory papule or small nodule which later undergoes central necrosis, sometimes with formation of pus, and terminates in a tiny pitted scar. Thirteen doses of ¼ skin unit (75 roentgens) of unfiltered roentgen radiation administered weekly materially aggravated the eruption and seemed to cause it to spread. Also during the period of treatment the eruption became much more squamous and more confluent, the lesions at first having been quite discrete. The patient has no foci of infection. He has no evidence of active pulmonary tuberculosis, but his lungs show a generalized increase in markings and evidence of healed tuberculosis at the hili. There are an unusual number of scattered, calcified tubercles which in the past may have been the source of a hematogenous spread of the disease. The Wassermann test is negative. The test with tuberculin showed a 4 plus reaction with 1:1,000 dilution and about a 2 plus reaction with 1:100,000 and 1:1,000,000 dilutions.

Two biopsies of material from the right cheek have been made. The first section showed only chronic inflammatory tissue. The report on the second section was as follows: "Diagnosis: Lewandowsky type of tuberculid. The section shows epidermis that is normal. The dense cellular exudate in the middle portion of the corium is well localized. At the periphery of this cellular exudate are giant cells of the Langhans type."

As soon as the roentgen treatment was discontinued and application of a soothing calamine lotion was substituted the eruption improved, and now it has practically disappeared. It has been my experience that roentgen treatment almost invariably causes a flare-up of this type of eruption and that it responds promptly to application of soothing lotions, either with or without ultraviolet irradiation.

DISCUSSION

DR. GEORGE M. MACKEE: Of course one cannot make a diagnosis from the present appearance of the eruption; it can be based only on the history. I understand that the histologic picture was that of tuberculosis. In other words, tubercles with caseation were found. According to my conception, one does not find tubercles in cases of Lewandowsky's tuberculid. There is simply a tuberculoid structure. Furthermore, patients with that condition are hyposensitive to tuberculin, while this patient was hypersensitive. Apparently the condition is lupus miliaris having some resemblance to rosacea and to Lewandowsky's tuberculid. I may add that the elementary lesion in this case was a nodule, whereas in cases of tuberculid the elementary lesion is a tiny papule often capped with a pustule. On the other hand, Lewandowsky's tuberculid does not, as a rule, respond favorably to roentgen therapy while lupus miliaris does.

DR. FRANK C. COMBES: If I recall correctly, there has appeared in the *Medical Clinics of North America* (**14**:1555 [May] 1931) an article by Dr. Sulzberger and Dr. Wise on the sensitivity of patients with various types of tuberculosis to tuberculin. I understand that patients with Lewandowsky's tuberculid are hypersensitive to tuberculin.

DR. GEORGE M. MACKEE: Patients with lupus miliaris faciei are, as a rule, hypersensitive to tuberculin, while those with Lewandowsky's rosacea-like tuberculid are usually hyposensitive.

DR. R. H. RULISON: I purposely asked Dr. Traub how he wanted this case listed. He wanted it listed as one of rosacea-like tuberculosis rather than as one of rosacea-like tuberculid.

KAPOSI'S SARCOMA. Presented by DR. J. FRANK FRASER.

R. D., a man aged 67, born in Italy, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of an eruption of three and one-half years' duration. It consists of multiple brownish-red nodules located chiefly on the forearms; a few nodules are present on other portions of the arms. The lesions vary in size; some are the size of a pinhead, and others are from 0.75 to 1 cm. in diameter. On palpation they seem to be from 4 to 5 mm. in thickness and elevated from 2 to 3 mm. above the surrounding skin. The largest lesions are on the palms. They are symmetrical. On each external lateral surface of the thumbs there are two lesions which measure 2.25 by 2 cm. and are from 4 to 5 mm. in thickness. The palmar lesions are purplish; the others are brownish red. A peculiarity of these lesions is that they lie transversely to the longitudinal axis of the arm.

The report on a biopsy made on March 14, 1935, was as follows: "Microscopic diagnosis: Kaposi's sarcoma. The essence of the lesion consists of a proliferation and distorting change in the vessels of the upper half of the corium. Large, rigidly patent, slitlike vessels with many loopings and invaginations are present. The walls of these are thick and infiltrated with spindle-shaped cells. Most of the vessels are involved, although a few are spared. The lining endothelial cells are increased in number but do not show proliferation. There are relatively large areas of homogeneous collagen which are infiltrated by the spindle cells which are cut in various planes. The more cellular areas suggest a cellular fibroma. The collagen is increased and condensed. There are foci of round and plasma cells, fibroblasts and reticular cells. These foci are sometimes distributed around the vessels. There is also a sparse scattering of lymphocytes throughout the whole area. The papillae are flattened, but otherwise the epidermis is normal."

DISCUSSION

(The members unanimously agreed with the diagnosis.)

POIKILODERMA OF CIVATTE. Presented by DR. HOWARD FOX.

M. W., a woman aged 71, of Scotch-Irish parentage, emigrated to Canada in infancy and for the past forty-five years has lived in the United States. She is unable to give an accurate history of her cutaneous condition. Her mentality is abnormal, as shown by her having suffered from acarophobia for a number of years. The eruption for which she is presented apparently began about six years ago. It involves the upper half of the sternum, the clavicular region and the lateral aspects of the neck and is symmetrical. It consists of a diffuse area which fades off gradually into the normal skin. It has a reticulated appearance due to an interlacing network of yellowish-brown pigmentation and whitish spots the size of millet seeds. The whitish areas are, as a rule, somewhat elevated and firm and smooth. There are a few telangiectases and some branny scaling. A few punctate and linear excoriations are present on the affected areas, but more such excoriations occur on the unaffected skin of the trunk and arms. The patient complains of generalized pruritus; she frequently picks off branny scales with a forceps, and she is convinced that she is suffering from scabies. She is well nourished and is in good general health.

DISCUSSION

DR. EUGENE F. TRAUB: The cases reported by Graham Little occurred, I believe, with only one exception, in women, especially at the menopause. In those cases the eruption was distributed over the face, neck, upper portion of the chest and shoulders. The most characteristic feature, if there is any one that might be so designated, is the reticular network consisting of tiny inflammatory papules covered with a little scale. Some of the patients presented white spots, and others showed considerable pigmentation. Areas of telangiectasia and atrophy were present in a number of cases. Not all these symptoms are necessarily present in every case, although some of the patients do present most of these features. In

a number of cases reported by Little improvement or complete cure followed glandular therapy. The patient whom I presented before this society was a woman, 49 years old, with lesions principally located on the sides of the neck. Various types of glandular therapy failed to cause any change in the condition. The patient presented today seems to present all the major characteristics described for this disease, if poikiloderma is a disease entity. In his textbook Ormsby stated that melanosis of Riehl, which I thought was an entirely different condition occurring primarily in soldiers during the World War, is the same process as poikiloderma of Civatte.

DR. HOWARD FOX: I also think that light plays some part in the production of these lesions. While the patient has suffered for years from acarophobia, the marks of scratching are by no means confined to the areas of poikiloderma.

DR. R. H. RULISON: I have seen this patient both at the old Cornell Clinic and at the New York Hospital. She is a persistent patient and is notoriously a "picker." Her favorite site for picking is the neck. My colleagues and I used to refer her to psychiatrists, who would finally discharge her; then she came back to us. I have seen her at intervals for six years. She used to bring little vials full of bits of skin which she wanted us to analyze for parasites. I have watched the pigmentation and scarring on the neck develop, and I think that Dr. Niles will confirm the statement that she has more pigmentation now than she had three or four years ago. I think that all her symptoms can be explained on the basis of neurotic excoriations.

DR. CHARLES MALLORY WILLIAMS: When referring to this patient's condition as poikiloderma of Civatte one overlooks the most striking peculiarities of the case, namely, the limitation of the eruption to the exposed surface of the neck and chest and the occurrence of the eruption on the whole of that area. The illustrations of poikiloderma of Civatte show that the eruption occurs in patches on the face and neck but does not extend to the margin of the covered skin and then stops abruptly, as on the neck of this patient. I have seen similar cases of atrophy due to exposure to the sun's rays, but none as severe as this. Dermatitis caused by actinic rays and mechanical irritation seems to me to be a sufficient diagnosis.

A CASE FOR DIAGNOSIS: PARAPSORIASIS EN PLAQUES? Presented by DR. PAUL E. BECHET.

D. K., a woman aged 24, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital states that she suffered a severe sunburn six years ago and that one year later the present lesions appeared. Hence the lesions have been present for five years and have not disappeared or changed in their appearance in that time. On the forehead, sides of the chest and groin there is a dry, faintly erythematous, slightly scaly eruption, which crinkles, thereby greatly resembling crepe paper. The eruption forms large well defined patches from 6 to 20 mm. in diameter with normal skin adjoining the borders of the patch. Examinations for tinea have given repeatedly negative results. Sections of skin revealed a superficial sparse inflammatory process. The epidermis showed no change, and the basal cell layer was intact throughout.

DISCUSSION

DR. J. GARDNER HOPKINS: It seems to me that this is a case of epidermal atrophy and hyperkeratosis, which are the findings in cases of xeroderma. The picture presented by the sections seemed to correspond to that diagnosis. There was no inflammatory reaction, either clinically or histologically, which would be necessary for a diagnosis of parapsoriasis.

Dr. Howard Fox: I can see no evidence of parapsoriasis and nothing more than areas of dry skin with some scaling. A few areas show a slight inflammatory reaction, a simple chapping of the skin which is to be expected in such cases.

Dr. Frank C. Combes: What is the relationship of this eruption to the severe sunburn?

Dr. Paul E. Bechet: It is difficult to accept the diagnosis of xeroderma. The patches are too localized. The skin on the legs is slightly dry but not unusually so. There is normal skin a few millimeters beyond the affected areas; all these features are opposed to the diagnosis of xeroderma. The patient had a severe sunburn a few months before this eruption appeared, but I do not think that there is any relationship between the two disorders. The histologic picture is also opposed to the diagnosis of xeroderma.

A Case for Diagnosis (Tertiary Syphilis? Tuberculosis Verrucosa Cutis?). Presented by Dr. Edward R. Maloney.

V. H., a white man aged 39, presents on the dorsal and palmar surface of the right hand and on the right wrist an eruption consisting of elevated crusted, nodular lesions. This eruption began three years ago on the back of the hand and gradually extended to its present location. The Wassermann reaction is 4 plus. The biopsy report has not yet been received.

DISCUSSION

Dr. Eugene F. Traub: I saw this patient a few days ago, and because of the spontaneous healing, which has resulted in a smooth scar in some areas, I was of the opinion that the process was syphilitic rather than tuberculous.

Dr. George M. MacKee: I favor the diagnosis of tuberculosis verrucosa cutis, but I should like to know the results of more laboratory examinations and clinical observation before making the diagnosis definite.

Dr. Frank C. Combes: I favor Dr. MacKee's diagnosis.

Dr. J. Frank Fraser: I favor the diagnosis of tuberculosis verrucosa cutis suggested by Dr. MacKee.

Dr. A. Benson Cannon: I think that syphilis is the most probable diagnosis. The short duration, extensiveness of the lesions, the unilateral involvement, the circinate outline and the spontaneous healing with scarring are symptoms suggestive of syphilis. I think that there is no verrucous element but that only heaped-up crusts and scales are present.

Dr. Hans J. Schwartz: I agree with the diagnosis of syphilis rather than with that of tuberculosis.

Dr. Howard Fox: The discussion is similar to that which took place at a recent staff conference, the opinions as to syphilis and tuberculosis being about evenly divided. This proves that in cases of this kind it is difficult, if not at times impossible, to distinguish clinically between the diseases. If the elevated masses are crusts, that would probably mean that the condition is an ulcerative nodular syphilid, whereas if they are scales, that would suggest the existence of the verrucous form of tuberculosis. The duration and unilateral location slightly favor the diagnosis of syphilis.

Dr. Charles Mallory Williams: Although eruptions due to tertiary syphilis are usually unilateral, I always supposed that tuberculosis cutis also was likely to produce single or unilateral lesions. Although the development may be more rapid than that usually occurring in cases of tuberculosis, it seems to me inconceivable that the patient could have syphilis for three or four years without having more destruction.

Dr. R. H. Rulison: I agree with Dr. Williams.

Dr. Paul E. Bechet: It seems to me that this patient has on the palm a verrucous hypertrophy without any scabs. I favor the diagnosis of tuberculosis.

Dr. Edward R. Maloney: My impression is that the disease is syphilis.

NEUROFIBROMA. Presented by DR. J. FRANK FRASER.

L. K., a woman aged 43, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, because of an eruption of seven years' duration. On the skin of the face and upper anterior surface of the chest are numerous (from 50 to 100) discrete, round skin-colored nodules, varying in size from that of a pinhead to that of a pea. The clinical picture suggests syringocystadenoma, but the histologic picture is that of neurofibroma.

DERMATOPHYTOSIS WITH AN ERYSIPELATOUS DERMATOPHYTID OF THE LEGS. Presented by DR. EUGENE F. TRAUB.

C. W., a man aged 52, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, has an eruption which appeared on both legs over a year ago. Erythema nodosum-like or erysipelatous patches have appeared at recurring intervals on the lower portion of either one or the other leg. The patches are characterized by marked erythema and swelling together with considerable local heat and pain, accompanied occasionally by slight general symptoms. A patch of eruption of this kind runs its course in from several weeks to a month or two. Walking or standing seems to aggravate the condition. The patient was unaware of an eruption on his feet. Fungi were recovered repeatedly from four interspaces. In spite of the ease with which fungi were found, a growth on culture could not be obtained after repeated efforts. Blood cultures also gave negative results. A test with trichophytin and oidiomycin was negative after forty-eight hours. Following the injections of trichophytin and oidiomycin a flare-up occurred on the dorsum of the foot, the disease having been in a rather quiescent form at the time the patient was first seen. Because of the negative reaction to the test with trichophytin, which seemed inconsistent, and at the suggestion of Dr. Sulzberger it was decided to repeat these tests and to select a site on the lower portion of the leg and on the upper portion of the arm instead of on the forearm as in the previous test. On the part of the arm tested a wheal with pseudopods and a large surrounding area of erythema developed within ten minutes after the injection. At the site on the leg where the trichophytin was injected an area of erythema developed immediately; swelling ensued, and a reaction exactly duplicating the erysipelatous eruption of which the patient had been complaining appeared. The reaction reached its height in about one-half hour, and at the end of forty-eight hours it had disappeared. Blood serum was taken from this patient for passive transfer tests; a normal control was selected; sites were prepared, and the prepared sites were tested against various types of streptococci and staphylococci and against oidiomycin and trichophytin. Only the site tested with trichophytin gave an immediate positive wheal reaction. A series of cases in which similar conditions were treated and observed for a number of years are to be reported in detail by Dr. Williams and me. In all our cases fungi were isolated from the interdigital spaces, cracks of the skin or nails. The majority of the patients were unaware of the fact that they had lesions on the feet, and they had no special symptoms referable to the feet. Treatment of the focus of tinea in this entire group of cases caused a complete disappearance of the clinical symptoms in practically all the patients, some of whom had had recurring attacks for a period of over twenty years. Dr. Williams and I believe that such cases are instances of a definite variety of dermatophytid not heretofore recognized as such.

DISCUSSION

DR. CHARLES MALLORY WILLIAMS: This is one of a series of cases which my co-workers and I are now studying. A similar series was reported by McGlasson at the meeting of the American Dermatological Association in Philadelphia in 1926, but although he reported the presence of tinea he did not claim that the eruption on the legs was a trichophytid. In all these cases there is an eruption which resembles erysipelas, but in those which we have observed there are often notable differences: The attacks are usually shorter, the prostration is generally

less severe and the sharp margin seen in cases of true erysipelas is lacking. In most of the cases the local symptoms of tinea of the feet are mild. In the patient presented today the reaction around the site on the leg inoculated with trichophytin was identical in appearance with the erysipelatous lesion on the dorsum of the foot; this, in my opinion, is conclusive evidence that the erysipelatous eruption was a trichophytid. Of course it is possible that in some cases the tinea pedis serves only as a portal of entry for bacterial organisms, but it is my belief that in this case and in many others the whole process—vesicles on the feet, erysipelatous eruption on the legs, enlargement and pain in the inguinal glands—is due to a single mycotic organism and its toxins.

DR. J. GARDNER HOPKINS: This is extremely interesting. One can get almost exactly the same type of recurrent lymphangitis on the face in cases in which there is no evidence of tinea and in which the evidence strongly points to sensitization to staphylococci or streptococci. It is hard to overlook the import of Dr. Williams' reproduction of the lesion or to doubt that this patient's eruption is a dermatophytid. I think it is important to note that most of the eruptions of this kind occurring on the face the nature of which has been proved have been staphylococcic rather than streptococcic.

DR. CHARLES MALLORY WILLIAMS: Dr. Hopkins has stated that the lymphangitis and cellulitis which are present in this patient may be due to Streptococcus or, more probably, to Staphylococcus. My own experience in cases of involvement of the leg leads me to the belief that, although in some cases the disorder may be due to one of these organisms, in others it may be produced by a fungus.

DR. HOWARD FOX: These erysipelas-like patches which are apparently due to a fungous infection are somewhat analogous to lymphangitic streaks which have been shown recently and are apparently proved to be due to fungous infection. Such disorders had previously been thought to be caused by pyogenic cocci.

DR. EUGENE F. TRAUB: Dr. Fox is referring to two cases of lymphangitis complicating tinea in patients whom I presented; one of these patients was presented before this society, and the other was presented before the Section of Dermatology and Syphilis of the New York Academy of Medicine. Lymphangitis has been known to follow the injection of sterile trichophytin. Lymphangitis of the legs, a comparatively rare complication, does occur in cases of tinea pedis when apparently no other secondary invading organism is present. In this patient the feet showed no evidence indicative of a bacterial infection. Dr. Williams had to search hard for areas presenting evidence of mycelium. The finding of the organism, the reproduction of the clinical picture of the disease by an injection of trichophytin into the lower portion of the leg and the positive reaction to trichophytin in passive transfer experiments together with the negative reaction to other types of organisms in passive transfer experiments seem to prove the diagnosis in this case. It is interesting that in most of the other cases which we have been able to follow the patients remain well after the focus of tinea on the feet has been treated. As in this case, many of the patients do not realize that they have an infection with tinea, the involvement of the feet being practically asymptomatic. One of the patients who had recurring attacks of erysipelas for over twenty years has recently been examined and has remained entirely well for a period of about three years since his feet were treated. The number of cases of this character indicates that the clearing up of the tinea followed by the cure of the disease is more than a mere coincidence.

FOLLICULITIS DECALVANS SIMULATING LUPUS ERYTHEMATOSUS. Presented by DR. PAUL E. BECHET.

M. B., a woman aged 51, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, states that her eruption has been present for six months. Scattered through the scalp are a number of bald areas of irregular contour, measuring from 1 to 2 mm. in diameter. The bald areas are scarred and pinkish, and show some scaling. At present there is no folliculitis

at the periphery of patches devoid of hair, but the patient states that there has been much itching and scaling of the scalp and that in the initial stages of the trouble pustules appeared frequently. Careful inspection of the face and ears fails to disclose any sign of lupus erythematosus.

Biopsy specimens reveal a marked increase in connective tissue and small thin-walled blood vessels in the middle and upper portions of the cutis. There is a sparse infiltrate of small round cells and plasma cells. The epidermis is considerably thinned, and the rete pegs and papillary bodies have mostly disappeared. The microscopic diagnosis was folliculitis decalvans with replacement by granulation tissue and atrophy of the epidermis.

REPORT ON A CASE FOR DIAGNOSIS (PIGMENTED AND SCALY PATCHES). DR. HOWARD FOX.

A second biopsy was made on Mr. L., who was presented at the February meeting of the society (ARCH. DERMAT. & SYPH. **32**:36 [Dec.] 1935). At that time one of the members thought he noticed some infiltration of several patches on the thigh. The patient was later examined with great care; Dr. Williams was present at that examination, and no thickening or hardness of any of the patches could be detected. As a well known European dermatologist who saw the patient five years ago thought that the disease might be erythrasma, numerous scrapings were again made and stained for Microsporon minutissimum. The results were negative after a prolonged search. A second biopsy was made, and Dr. T. J. Riordan, who made the histologic examination, reported as follows: "The sections from the second biopsy specimen failed to give further information. The well demarcated zone of infiltration and the epidermal nests observed in the previous histologic section were absent. A moderate infiltration, consisting mainly of lymphocytes, was noted. The upper one third of the corium showed a marked edema with swelling of the collagen bundles. There were no added significant changes in the blood vessels. The elastic tissue was again disrupted and decreased in the edematous upper portion of the corium. The histologic interpretation was 'chronic inflammatory tissue'."

DISCUSSION

DR. CHARLES M. WILLIAMS: I agree with what Dr. Fox said. I could find no infiltration or induration.

LOS ANGELES DERMATOLOGICAL SOCIETY

NELSON PAUL ANDERSON, M.D., *Secretary*

Regular Monthly Meeting, April 9, 1935

MOSES SCHOLTZ, M.D., *Chairman*

FUNGOID BROMODERMA. Presented by DR. MOSES SCHOLTZ.

S. R., a Jewess of Hungarian extraction, has had recurrent cutaneous lesions, accompanied by corneal ulcers, for five or six years. She was given from 5 to 10 drops of solution of potassium arsenite U. S. P. three times a day by an ophthalmologist. She has been taking this medicine intermittently since 1932. The ophthalmologist claims that the solution of potassium arsenite clears up the cutaneous condition but not the lesion in the eye. The patient entered the Cedars of Lebanon Hospital about four weeks ago, at which time she was taking from 5 to 6 drops of the aforementioned solution. She appears sluggish and feeble. A number of medallion-like pustular and fungoid lesions varying in diameter from the size of a small finger to that of a large coin are present on the face and forearms; some of the lesions closely simulate lesions of late secondary syphilis and gummatous syphilis. On the forerams and legs are small and large soft whitish

scars which are confluent in large areas. Roentgen examination showed metallic deposits in the buttocks. The Wassermann test, the microscopic examination for fungi and bacteria and the urinalysis gave negative results. Examination of the blood plasma for bromides showed 8 units; two subsequent examinations showed 7 units. In 1932 the pathologist at the Cedars of Lebanon Hospital made a histologic diagnosis of epithelioma. At that time his report on the lesion read: "It may be an edge of low grade epithelioma with secondary inflammation of undetermined nature." The patient was recently put on a salt-rich diet and was treated with compresses of boric acid. The lesions on the face have cleared in a spectacular manner.

DISCUSSION

DR. MOSES SCHOLTZ: I am told that this patient was presented before by Dr. Robinson. She has also been at the County Hospital, but I do not remember her. The lesion in the eye has developed simultaneously with the cutaneous lesions. For the last year she has been taking from 6 to 10 drops of a solution of potassium arsenite. The ophthalmologist said that the arsenic caused disappearance of the cutaneous lesions but had no effect on the lesion in the eye. The diagnosis of bromoderma has been made because of the results of the therapeutic test. The patient was put on a salt-rich diet, and the lesion on the face cleared up completely under treatment with compresses of boric acid. There was no history of ingestion of bromide.

DR. W. H. GOECKERMAN: I agree with the diagnosis of ioderma or bromoderma. This patient presents a peculiar picture, which one sometimes sees, that is perfectly compatible with the verrucous type of either one of the two conditions.

DR. CHARLES R. CASKEY: I wish to suggest the possibility of multiple sarcoma. When a pathologist reports the presence of malignant changes in a biopsy specimen that should not be disregarded. If there is no history of recent ingestion of bromide I should not consider a diagnosis of bromoderma.

DR. H. S. CAMPBELL: I wish to suggest that while the present picture is undoubtedly suggestive of an eruption due to iodide, the degree of metamorphosis of the lesions seen at three different periods covering about two years leads me to believe that the condition is a bullous form of Duhring's disease irrespective of the present clinical findings.

DR. MOSES SCHOLTZ: I do not see how any other lesion could clear up so spectacularly in a week.

DR. H. S. CAMPBELL: It would be in order for Dr. Robinson to comment on this case. As I remember the condition, it was decidedly and entirely a vesicobullous eruption when the patient was presented by him about eighteen months ago. At that time the condition was believed to be an eruption due to iodide.

DR. SAUL S. ROBINSON: The picture has changed from time to time. I have observed the case for two years, and the various diagnoses that have been made indicate how the picture has changed. Among the diagnoses made were those of bullous syphilid and mycotic infection. In the Los Angeles General Hospital a diagnosis of ioderma or bromoderma was considered. I believe that the patient has been taking a drug knowing that it has produced the eruption, although she was warned not to take any medication internally. The ingestion of a solution of potassium arsenite may account for the fact that the eruption due to iodide or bromide clears up at intervals. At present the eruption appears to belong in the group of ioderma or bromoderma with vegetating lesions, although the last time I saw the patient the eruption appeared to be Duhring's disease with bullae on a flat, erythematous base.

DR. KENDAL FROST: Dr. Scholtz Jr. wanted me to report that there is an increase of the amount of bromides in the blood.

DR. MOSES SCHOLTZ: At first the bromide content of the blood plasma was reported to be 8 units, as ascertained by a new kind of test. Two subsequent tests each showed 7 units.

DR. KENDAL FROST: What is supposed to be the normal figure?

DR. MOSES SCHOLTZ: It is claimed that this figure is normal. Ordinarily in cases of bromoderma the bromide content of the blood is measured by the number of milligrams per hundred cubic centimeters of blood. In the literature the claim is made that when the bromides are displaced from the tissues the amount of bromides in the blood increases instead of decreases.

DR. H. P. JACOBSON: I wish to state that I concur with the diagnosis as presented, but I should like to say a few words in reference to Dr. Caskey's suggestion regarding the possibility of malignant disease. I believe that Dr. Caskey's opinion has been somewhat influenced by his recent experience in a case in which all the members of this society are undoubtedly interested. The members will recall that about one and a half or two years ago one of us presented a patient with lesions roughly similar to those of this patient and that a diagnosis of dermatitis factitia was made. At the time some of the members disagreed with the diagnosis and suggested an alternate diagnosis of ulcerative gummatous syphilis. I had the opportunity to see that patient again about two months ago, at which time the picture had assumed quite a malignant aspect and morphologically some of the cutaneous lesions presented a fairly close similarity to those exhibited by Dr. Scholtz' patient. The aforementioned patient died two or three weeks ago, not from dermatitis factitia but from some form of malignant cutaneous disease with visceral metastases. I may add that a biopsy on one of the cutaneous lesions made before the death of the patient revealed what appeared to be fragmented treponemes, some mycelial hyphae and malignant epithelial changes in the tissues.

DR. H. S. CAMPBELL: I do not think that Dr. Jacobson has given the complete history. At least there was some suggestion made regarding the finding of a spirochete in tissue taken from this patient.

CONGENITAL ICHTHYOSIS. Presented by DR. SAUL S. ROBINSON.

D. A. is a boy aged 2 months. According to the history there are no other cases of ichthyosis in the family. The patient was born at full term on Feb. 2, 1935, at the Cedars of Lebanon Hospital. The mother had no pathologic condition during the pregnancy. A cutaneous disorder and marked bilateral ectropion were present at birth. The ectropion has healed to a great extent. There is an intermittent exfoliation of the skin of the entire body, including the scalp, palms and soles, and a generalized dry, thin exfoliation, especially marked on the trunk. The skin is parchment-like and drawn. In the scalp are some thickened scales. The hair and nails and mucous membranes are normal. Some eversion and entropion of the upper eyelids are present. The Wassermann reaction of the blood of both the mother and the child was negative.

DISCUSSION

DR. SAUL S. ROBINSON: This case may be of interest in that the condition is quite rare. The disorder was present at birth, and at no time did any vesicles appear. The child is now 2 months old and has had almost three complete exfoliations of the epidermis. At no time have I found anything to indicate Ritter's disease. I believe the condition to be congenital ichthyosis, not the true form seen in a harleqin fetus or a grave form but the milder type.

DR. H. C. L. LINDSAY: I believe the condition to be a type of seborrheic exfoliative dermatitis. Ritter's disease is severe; it is marked by elevation of the temperature and severe prostration. The chances of surviving are only 50 per cent.

DR. H. S. CAMPBELL: I believe there was some question shortly after the birth of this patient as to the condition's being Ritter's disease. I saw the child at the hospital a few days after he was born. The chart contained a description of the peculiar condition of the skin observed at birth. The diagnosis of Ritter's disease becomes absolutely untenable on this ground alone, as Ritter's disease commences a few days after birth, usually with a reddened patch on the face.

This is accompanied by a rise in temperature, gastro-intestinal disturbances and distress. Children with Ritter's disease appear acutely ill. This child was perfectly normal so far as feeding went. The course of Ritter's disease is about six weeks, whereas this child is now 2 months old, and definite improvement in the condition of the skin has occurred. This condition is a typical congenital ichthyosis of the "mild" variety.

DR. MOSES SCHOLTZ: The disorder seems to be a new variety of ichthyosis. My conception of ichthyosis is thickening of the horny layer of the skin. In this case there is a solid desquamation of the skin which is like that seen after scarlet fever. I do not think that the disorder can be classified with the ordinary type of ichthyosis. It seems to me more like a toxic desquamating dermatitis similar to that occurring in adults.

TERTIARY SYPHILODERM. (NODULAR TYPE). Presented by DR. NELSON PAUL ANDERSON.

R. R. S., a man aged 35, a policeman, had chronic gastritis. Otherwise his past history is irrelevant. The patient was first seen with scabies in October 1934. At that time the present eruption on the glans penis was noted, and the patient was questioned regarding venereal infection. He stated that he had a gonorrheal infection eight years ago, for which he was treated. A Wassermann test was made at the end of the period of treatment, and the result was reported as 1 or 2 plus. The patient was then given from six to thirteen injections for "blood building." He appears well nourished and healthy. The lesions on the glans penis first appeared three or four years ago. The patient believes that they were more elevated at the onset than at present. The patches are on each side of the urethral orifice and near the right side of the frenulum. The lesions are cherry-sized and show a tendency to circinate grouping; they are in different stages of development, some being bluish red and nodular and some atrophic. When the patient was first seen in October 1934 there was an ulceration in the patch near the frenulum. Since then some of the lesions have become smooth with a covering resembling cigaret-paper. On Nov. 2, 1934, the Wassermann reaction was negative, and subsequent tests as well as three provocative tests were likewise negative. Spinal puncture has not been made.

DISCUSSION

DR. SAMUEL AYRES JR.: I wish to suggest the diagnosis of lichen atrophicus et sclerosus. According to the patient's statement, these lesions from the beginning were bluish white and scarlike, and they were not preceded by any nodules or ulcerations. They appeared thirteen or fourteen years ago. Moreover, the patient says that three or four years ago he had several sores, after healing of which the appearance of the original condition was not changed. On close inspection the lesions seem to be a sclerotic type of lichen. The repeated negative serologic reactions also militate against, but do not exclude, the diagnosis of syphilis.

DR. H. S. CAMPBELL: I think that the eruption is a tertiary syphilid.

DR. MOSES SCHOLTZ: The patient presented himself because of scabies. May not these be postscabetic nodules such as those described by Ayres and Anderson?

DR. R. A. PHILLIPS (by invitation): I am inclined to agree with Dr. Ayres. However, the patient has an area of leukoplakia in the mouth, and this must be considered. Otherwise I should diagnose the condition as lichen planus atrophicus. I have seen two patients with a similar condition in Dr. Schamberg's office; I do not think that it is a nodular syphilid.

DR. H. P. JACOBSON: I agree with the diagnosis of tertiary syphilis. On inspecting this lesion closely one can observe four or five nodules situated peripherally to the scar and arranged roughly in a serpiginous fashion. The scar itself is of cigaret-paper character and fairly suggestive of a residuum of tertiary syphilis, though I should not exclude the possibility of a coexisting lichen atrophicus. The only unusual feature about this case which would mitigate against the possible diagnosis of tertiary syphilis is the element of time. However, everything

is possible in syphilis, and if I remember correctly, I have observed similar instances before. A biopsy should decide the question of diagnosis in this case.

DR. IRVING R. BANCROFT: I think that the lesion is not syphilitic but rather lichenoid.

PITYRIASIS ROSEA-LIKE PHYTID; DERMATOPHYTOSIS OF TOES. Presented by DR. NELSON PAUL ANDERSON.

H. C. M., a man aged 37, a salesman, says that about four or five weeks ago he noted itching on the scalp and on feeling the scalp thought that some small pimples were present. A few days after this he noted a red itching spot on the middle finger of the right hand. On the same day he noted that in the right groin there were red scaling itching lesions. Since then the eruption has progressively spread to both extremities and to the trunk. The patient has had dermatophytosis of the feet intermittently for several years. When he was first seen he presented yellowish-red to deep red papules and coin-sized maculopapules on the trunk, upper and lower extremities and genitalia; those lesions had a tendency to follow the lines of cleavage of the skin. Some of the lesions were slightly raised and papular. The larger lesions had a slight depression in the center with fine and adherent peripheral scaling. The smaller lesions were topped with fine white scales. The patch in the groin was bluish red and consisted of maculopapular lesions. There was a peripheral extension of the lesions; when the patient was seen again many of the papular lesions had flattened out and become larger. There was considerable maceration and fissuring and heaping up of whitish sodden epidermis between the toes.

DISCUSSION

DR. SAUL S. ROBINSON: I believe that the eruption is a dermatophytid secondary to a dermatophytosis of the toes.

DR. H. C. L. LINDSAY: The diagnosis of "pityriasis-like toxic rash" is correct, but that of "pityriasis rosea" is not. The eruption looks like a rash due to a drug. There are lesions on the palms and face, sites usually spared by pityriasis rosea.

DR. IRVING R. BANCROFT: I saw this patient a month ago. At that time the lesions did not resemble pityriasis rosea at all. They were small, red, raised nonitching papules, some measuring about ¼ inch (0.64 cm.) in diameter. At that time they resembled a toxic eruption.

DR. R. A. PHILLIPS (by invitation): The eruption may be a generalized systemic ringworm eruption, not a phytid. If one wants to consider phytids in any part of an eruption, one will see them often, as nearly every one has some condition suggesting ringworm between the toes.

PITYRIASIS LICHENOIDES CHRONICA (JULIUSBERG). Presented by DR. NELSON PAUL ANDERSON.

N. E., a woman aged 27, has an irrelevant family history, except for the fact that her mother has had asthma for several years. The present eruption began about seven years ago on the chest; then it spread to the neck, eyelids and lobes of the ears, and gradually it extended down the legs. Since the onset the patient has never been entirely free from the eruption, although there are times when the condition apparently improves. There is a generalized papular scaly lichenoid eruption involving the trunk, legs, arms, palms and soles. On the front and sides of the neck the lesions have conglomerated, producing a reticulated appearance not unlike an early poikiloderma. The patient has a watery discharge from the nose most of the time, and occasionally the eyes water (vasomotor rhinitis?). No biopsy has been made and no treatment has been given.

DISCUSSION

DR. R. A. PHILLIPS (by invitation): Has Dr. Anderson made scrapings of the scales for Monilia?

Dr. Nelson Paul Anderson: I have examined scrapings from the feet but have made no cultures.

Dr. W. H. Goeckerman: I agree with Dr. Anderson. Clinically I favor the diagnosis of pityriasis lichenoides chronica.

Dr. H. C. L. Lindsay: I suggest that the patient be given tablets of gold tri-bromide. They are said to have brought about a cure in some cases.

Psoriasis Localized to the Penis? Presented by Dr. C. R. Halloran and Dr. Saul S. Robinson.

P. M., a Spaniard, aged 40, had a lesion on the penis for about two years. There are no subjective symptoms. On the glans penis about the urethral orifice there is an erythematous scaling plaque which is slightly infiltrated. The lesion is well defined. The patient has a seborrheic dermatitis of the scalp and tinea of the toe-nails. The Wassermann reaction of the blood was negative. The report on the biopsy is indeterminate.

DISCUSSION

Dr. L. F. X. Wilhelm: I agree with the diagnosis of localized psoriasis.

Dr. H. C. L. Lindsay: What was the report on the biopsy?

Dr. Saul S. Robinson: Nothing definite has been determined. My co-workers and I have seen the patient for over a year, and the lesion has always been scaly.

Dr. Moses Scholtz: I wish to suggest the diagnosis of keratoplasia of Queyrat. It is one of those inflammatory types of superficial dyskeratoses.

Dr. Saul S. Robinson: This diagnosis was considered when the specimen for biopsy was taken.

Fox-Fordyce Disease. Presented by Dr. L. F. X. Wilhelm and Dr. W. H. Goeckerman.

M. J., a woman aged 30, a housewife, states that the present condition began about twelve or fifteen months ago with erythematous lesions under the arms. Gradually these lesions extended to the breasts and to the groins. She has received various treatments, including medication with ovarian extract and roentgen irradiation locally. She says that the condition is worse at the time of the menses.

Book Reviews

Diagnosis and Treatment of Skin Diseases. By Jacob H. Swartz and Margaret G. Reilly. Price, $3.50. Pp. 316, with 66 illustrations. New York: The Macmillan Company, 1935.

Here is a book with a new idea. Under a joint authorship a dermatologist collaborates with a nurse experienced in caring for diseases of the skin to give the methods that are used in a large clinic. It is well planned, and the material is abreast of the latest work. The first part, a large section devoted to general considerations and the care of the skin, gives much useful information. Then follow several chapters on the more familiar diseases arranged under a topographic classification. A short chapter is devoted to the exanthems, and following this is a good practical consideration of syphilis. The final chapter, on therapeutics and laboratory data, should be helpful to practitioners. The purpose of the authors apparently was to write a useful and practical guide for the diagnosis and treatment of diseases of the skin, and in the main they have succeeded in doing so, but the purpose has been carelessly carried out. It comes as a surprise to learn that "eczema is an indefinite term often used as the waste-basket term for dermatology" and as a general consideration in diseases of the skin that the "choice of clothes is of vital importance" and that "nothing so detracts from one's personal appearance as flat greasy hair"; to see such terms as "porky feel" and "pussy lesions"; to find such directions as "to add a teaspoonful of formaldehyde," or to see the trade name "carbona" used for carbon tetrachloride. It is a mistake to state that superfatted soaps contain an excess of fatty acids. The book is full of such lapses, but what struck the reviewer even more forcibly was the bad English. The book would be good if it did not contain so many inaccuracies and if more care had been used in the writing.

News and Comment

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

February 1, 1936, is the last date on which applicants in Group B may file applications for the written examination to be held on Saturday, March 14, 1936, in various cities throughout the country.

The oral examination for both Group A and Group B will be held on May 11 and 12, 1936, in Kansas City, Mo.

Directory of Dermatologic Societies *

INTERNATIONAL

NINTH INTERNATIONAL CONGRESS OF DERMATOLOGY AND SYPHILOLOGY

American Secretary: Dr. Howard Fox, 140 E. 54th St., New York.

FOREIGN

BRITISH ASSOCIATION OF DERMATOLOGY AND SYPHILOLOGY (CANADIAN BRANCH)

H. A. Dixon, President, Medical Arts Bldg., Toronto, Ont.
Norman Wrong, Secretary-Treasurer, Medical Arts Bldg., Toronto, Ont.
Place: Toronto, Ont. Time: May 1936.

ROYAL SOCIETY OF MEDICINE, SECTION OF DERMATOLOGY

H. W. Barber, President, 7 Devonshire Pl., London, W. 1.
Louis Forman, Secretary, 7, Devonshire Pl., London, W. 1.

NATIONAL DERMATOLOGIC SOCIETIES

AMERICAN MEDICAL ASSOCIATION, SCIENTIFIC ASSEMBLY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Harry R. Foerster, Chairman, 208 E. Wisconsin Ave., Milwaukee.
J. Bedford Shelmire, Secretary, 1719 Pacific Ave., Dallas, Texas.
Place: Kansas City, Mo. Time: May 11-15, 1936.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

Howard Fox, President, 140 E. 54th St., New York.
C. Guy Lane, Secretary, 416 Marlborough St., Boston.
Place: Kansas City, Mo. Time: May 11-12, 1936.

AMERICAN DERMATOLOGICAL ASSOCIATION

C. Guy Lane, President, 416 Marlboro St., Boston.
F. D. Weidman, Secretary, University of Pennsylvania, Philadelphia.
Place: New Ocean House, Swampscott, Mass. Time: June 4-6, 1936.

SECTIONAL DERMATOLOGIC SOCIETIES

CENTRAL STATES DERMATOLOGICAL ASSOCIATION

H. G. Miskjian, President, 936 Rose Bldg., Cleveland.
E. W. Netherton, Secretary-Treasurer, 2020 E. 93d St., Cleveland.
Place: Cleveland. Time: Dec. 5, 1936.

NORTHERN NEW JERSEY DERMATOLOGICAL SOCIETY

Henry J. F. Wallhauser, President, Medical Tower, Newark.
Louis J. B. LeBel, Secretary, 165 Grant Ave., Nutley.
Place: Academy of Medicine of Northern New Jersey, Newark. Time: Third Tuesday of January, March, May, September and November.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

SOUTHERN MEDICAL ASSOCIATION, SECTION ON DERMATOLOGY AND SYPHILOLOGY

J. W. Roussel, Chairman, 150 Baronne St., New Orleans.
Cornelius F. Lehmann, Secretary, 705 E. Houston St., San Antonio, Texas.

STATE DERMATOLOGIC SOCIETIES

CALIFORNIA MEDICAL ASSOCIATION, SCIENTIFIC ASSEMBLY, DERMATOLOGY AND SYPHILOLOGY SECTION

William H. Goeckerman, Chairman, 1680 N. Vine St., Hollywood.
Stanley O. Chambers, Secretary, 1210 Roosevelt Bldg., Los Angeles.

FLORIDA SOCIETY OF DERMATOLOGY AND SYPHILOLOGY

J. L. Kirby-Smith, Chairman, 204 Laura St, Jacksonville.
W. M. Sams, Secretary, 310 Ingram Bldg., Miami.

LOUISIANA DERMATOLOGICAL SOCIETY

M. T. Van Studdiford, President, 912 Pere Marquette Bldg., New Orleans.
R. A. Oriol, Secretary-Treasurer, Maison Blanche Bldg., New Orleans.

MASSACHUSETTS MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Harvey P. Towle, President, 453 Marlborough St., Boston.
Rudolf Jacoby, Secretary, 270 Commonwealth Ave., Boston.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Louis Tulipan, Chairman, 224 E. 17th St., New York.
C. H. Peachey, Secretary, 197 S. Goodman St., Rochester.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA SECTION ON DERMATOLOGY

Abraham Strauss, Chairman, Medical Arts Bldg., Philadelphia.
L. G. Bembauer, Secretary, 5026 Jenkins Arcade Bldg., Pittsburgh.

MICHIGAN STATE MEDICAL SOCIETY, SECTION ON DERMATOLOGY AND SYPHILOLOGY

A. E. Schiller, Chairman, 10 Peterboro St., Detroit.
G. Warren Hyde, Secretary, 2501 W. Grand Blvd., Detroit.

MINNESOTA DERMATOLOGICAL SOCIETY

Hamilton Montgomery, President, Mayo Clinic, Rochester.
D. D. Turnacliff, Secretary, 407 Medical Arts Bldg., Minneapolis.
Time: First Wednesday in October, December, February and April.

OKLAHOMA STATE DERMATOLOGICAL SOCIETY

Margne O. Nelson, President, 307 Medical Arts Bldg., Tulsa.
Harry Green, Secretary, 1116 Medical Arts Bldg., Tulsa.

TEXAS DERMATOLOGICAL SOCIETY

J. C. Michael, President, 1215 Walker Ave., Houston.
Everett R. Seale, Secretary, 1215 Walker Ave., Houston.
Place: Austin.

LOCAL DERMATOLOGIC SOCIETIES

BALTIMORE-WASHINGTON DERMATOLOGICAL SOCIETY

Dudley C. Smith, President, University of Virginia Hospital, Charlottesville, Va.
Francis A. Ellis, Secretary, 104 W. Madison St., Baltimore.

Bronx Dermatological Society

Eugene F. Kelley, Chairman, 93 Radford St., Yonkers, N. Y.
Henry Silver, Secretary, 290 West End Ave., New York.

Brooklyn Dermatological Society

Jacob Skeer, President, 272 E. 19th St., Brooklyn.
George F. Price, Secretary, 884 Lincoln Place, Brooklyn.
Time: Third Monday of each month except June, July, August and September.

Buffalo-Rochester Dermatological Society

Albert R. McFarland, President, 315 Alexander St., Rochester, N. Y.
Richard L. Saunders, Secretary, 333 Linwood Ave., Buffalo.

Central New York Dermatological Society

John R. Schermerhorn, President, 1225 Union St., Schenectady.
L. de Mello, Secretary-Treasurer, Medical Arts Bldg., Syracuse.

Chicago Dermatological Society

William A. Pusey, President, 7 W. Madison St., Chicago.
Max S. Wien, Secretary, 104 S. Michigan Ave., Chicago.

Cincinnati Dermatological Society

Samuel Goldblatt, President, 3208 Colerain Ave., Cincinnati.
Raymond G. Senour, Secretary-Treasurer, 19 W. 7th St., Cincinnati.

Cleveland Dermatological Society

H. G. Miskjian, President, 856 Rose Bldg., Cleveland.
E. W. Netherton, Secretary, 2020 E. 93d St., Cleveland.

Detroit Dermatological Society

L. W. Shaffer, President, 1553 Woodward Ave, Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River Ave., Detroit.

Los Angeles Dermatological Society

N. P. Anderson, Chairman, 2007 Wilshire Blvd., Los Angeles.
Thomas W. Nisbet, Secretary, 65 N. Madison Ave., Pasadena, Calif.
Time: Second Tuesday of each month, October to May, inclusive.

Manhattan Dermatologic Society

Paul E. Bechet, Chairman, 55 Park Ave., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

Montreal Dermatological Society

Alberic Marin, President, 1414 Drummond St., Montreal, Canada.
Paul Poirier, Secretary, 2073 St. Denis St., Montreal, Canada.

New England Dermatological Society

William P. Boardman, President, 388 Marlborough St., Boston.
J. Harper Blaisdell, Secretary, 45 Bay State Road, Boston.

New York Academy of Medicine, Section of Dermatology and Syphilis

Max Scheer, Chairman, 509 Madison Ave., New York.
Frank C. Combes, Secretary, 80 W. 40th St., New York.

NEW YORK DERMATOLOGICAL SOCIETY

R. H. Rulison, Chairman, 114 E. 62nd St., New York.
Eugene F. Traub, Secretary, 140 E. 54th St., New York.

OMAHA DERMATOLOGICAL SOCIETY

Charles McMartin, Chairman, 611 City National Bank Bldg., Omaha.
Donald J. Wilson, Secretary, 1216 Medical Arts Bldg., Omaha.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Herbert J. Smith, Chairman, 3305 N. 17th St., Philadelphia.
Vaughn C. Garner, Secretary, Greene and Coulter Sts., Philadelphia.

PITTSBURGH DERMATOLOGICAL SOCIETY

Emerson Gillespie, President, 120 Tuscarawas St., Canton, Ohio.
Joseph J. Hecht, Secretary, 506 Medical Arts Bldg., Pittsburgh.

ST. LOUIS DERMATOLOGICAL SOCIETY

Richard S. Weiss, President, 3720 Washington Blvd., St. Louis.
M. F. Engman Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

SAN FRANCISCO DERMATOLOGICAL SOCIETY

L. R. Taussig, President, 384 Post St., San Francisco.
John M. Graves, Secretary, 909 Hyde St., San Francisco.